

312 The question of water is fundamental in the formation of the
 [361] camp, both for the choice of its location and for the number of tents
 [182] to be included.

Water is obviously a problem for all life; it plays a role in the location of our small European villages, but this role is still greater in desert countries where water is quite rare. The existence of watering places is not only necessary for human life but also for the life of the domestic animals.

137 To this primordial condition of the existence of a watering
 182 place must be added the condition of pasture for the domestic
 312 animals. Therefore, we see that the establishment of a camp among
 361 the Ihaggaren is conditioned by two main factors whose character may vary in time, depending on the seasons and the abundance or scarcity of rain. But in the last analysis the pasture needs take precedence, for, generally speaking, pasture is even rarer than water, since it can sometimes be completely lacking. This need
 137 for pasture forces tribes to split up and camps to be dispersed in
 182 order to exploit it rationally. The situation is such that there are
 361 rarely more than five or six tents in each group. Only the aménokal's
 621 camp may number as many as 15 or 20 tents, but this is quite ex-
 [643] ceptional, involving the question of prestige and social order at the same time. Indeed, the aménokal supports a numerous family, his caliphs, his servants, etc. But this grouping around the chief is quite artificial, and the flocks which the people own are not with them but are /222/ spread out in the mountains, kept by Imrad or servants.

361 The camp is always established rather far from the watering
 312 places, for it is preferable to be closer to the pastures. It is often
 482 five or six kilometers from water. The animals go there to drink
 492 every two or three days, and the people use the occasion to get
 361 their water supply, which will be carried in waterskins on their backs
 609 or under the stomach of the asses. Tuareg, moreover, do not like
 361 to settle near a watering place, for it is always a stopping point for
 609 transients, and they avoid making their presence known to strangers.

773
372 the tortures of hell. Iblis, however, communicated his secret to the blacksmiths, who since that time have known how to use it for metalworking.

372
[824] The Tuareg used to obtain fire by friction, using a board of torha (*callotropis procera*) and a branch of hardwood; they caught the spark on a tuft of silk from the fruit of the *callotropis* and blew on it until they got a flame, which required about a minute. They have kept this practice and still use it occasionally.

[439]
[177] Today they find matches sold by /228/ Tamanrasset merchants, but they all have tinderboxes with flint and a bent piece of iron.

[415]
[439] They do not keep up the fire. They carry it from one tent to the other in a fragment of an old gourd or sometimes hold a glowing ember in their hands without burning themselves.

[237]
[484] When they want to transport it long distances, they use camel-dung embers.

[237] The Tuareg commonly use the excrement of camels and goats as fuel. In the high mountains, wood is quite rare, but in the lower parts of the Kouadia old acacia or *éthel* /atle? Ed. / stumps are to be found. They never use the wood of the *callotropis*, which is the devil's tree and makes muffled noises when it is burned.

[823] Basalt blocks are never used to make the hearth, since they believe that basalt is possessed by *genii* and will explode violently when heated.

352 Furniture. -- We have briefly described the objects furnishing the parts of the tent reserved for the husband and wife. To these must be added a certain number of objects which make up the



Fig. 27. Ahaggar Tuareg dish, imported from Hausa country.

232 these saddle camels, one may not, therefore, refer to a particular breed /race/ adapted for speed, as one may commonly hear spoken of.

436 The camel has a well determined exchange value among the Tuareg. It is one of the bases for comparison in their commercial transactions.

233 Each tribe marks his animals with a particular sign, and /251/
422 the owners who have many camels also have their own signs, marked with a hot iron on one of the parts of the animal's body -- neck, cheek, or thigh.

233 The sheep. -- Sheep are raised only accessorially in the Ahaggar, because grass is not abundant enough. But it occupies a large place
[137] in Sudanese animal husbandry.

[136] It is a very peculiar animal with short hair and a long tail. It stands tall, a characteristic which has won for it the name of Ovis
[174] longipes. The Tuareg certainly introduced it into West Africa. Zoologists never refer to it except as Tuareg sheep. Its antiquity in North Africa is well known. The ram of Ammon is pictured with its characteristic form; and it is also recognizable in the splendid rock drawings of Geryville and Tiout. It seems to descend from the Corsican wild sheep rather than from the Algerian wild sheep. Today it is an animal found exclusively in Tuareg camps of the Sudan or
574 in their area of influence.

262 Sheep is the dish served at great feasts, and its skin is used as
237 a ground rug, a blanket, or to make harnessing articles.

233 The goat. -- The goat is the mountain animal par excellence, as frugal an eater as can be, resisting both cold and heat, and able to be content with the meagerest pastures. It is thus quite natural to find many of these goats among the Ihaggaren.

[136] /252/ The Ahaggar species is small with long black hair. In the Sudan it is different colors -- white and black, or red -- with
[232] short hair; it stands taller than the Ahaggar species and is often crossed with the dwarf female goat in the southern tribes.

136 The origin of the goat is less certain than that of the sheep. Very widespread all over the world, it must have been domesticated at

136 several different spots, and it is not impossible that the species
 [172] bred today in the Ahaggar is of African origin. Bones of the species
 are found in the Neolithic layers of the Sahara.

137 At the present time there is a death struggle between the goats
 233 and trees in the Ahaggar. The goat itself is capable of browsing
 185 the lower branches and destroying them, thanks to its agility. The
 Tuareg do the rest when pasture is scarce, by felling the main
 branches to put them within the reach of the animals. And so, in
 a relatively short time, trees, and the tahla (*Acacia* sp.) in par-
 ticular, will be only a memory in the Ahaggar. Nothing has

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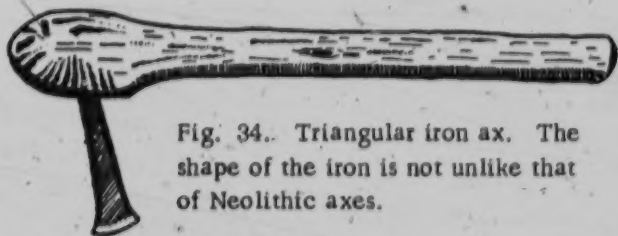


Fig. 34. Triangular iron ax. The shape of the iron is not unlike that of Neolithic axes.

been done by the French administration in the Ahaggar to protect the trees, when it would be sufficient to close some valleys for several years, while taking into account the needs of the shepherds. Measures of this kind have been taken in the environs of Goundam and have given very good results.

132 Prolonged dryness which causes a lack of pasture often puts
 233 goat raising in difficulties. The birth rate is stopped short, and
 mortality may result to such a great extent that the number of
 animals sometimes falls to one fifth. Then many years are needed
 to build up the flocks, granting, of course, the arrival of favorable
 rains.

232 The careless and fatalistic Ahaggaren do not even try to step
 up breeding by buying sires in Adrar or in Aïr. They let their
 weak flocks reconstitute themselves by their own means, which
 [272] sometimes requires many years. In case of an overabundance of
 births, they limit the number of animals, for they are well aware

233 of the average resources of their country and never let their flocks
[272] exceed the number of head necessary for the milk needs of their
[438] family -- about ten to twelve animals per person. The surplus is
consumed or sold to the sedentary people in the agricultural centers.

233 /253/ The Ahaggar goats give very rich milk which makes
[234] excellent butter. The meat, which is a little tough, is eaten boiled,
[252] and the hide is valued for making saddle bags, waterskins, and
[262] sometimes tents.
[237]

The ass. -- The Ahaggar Tuareg have many asses. They do
not breed them properly speaking, taking no care of them and letting
[232] them reproduce freely. Many Tuareg do not know the exact num-
[422] ber of asses they have, for they do not use them all and abandon
them in the mountains where they become more or less wild. The
young ones, born in the meantime, do not let anyone get near them,
and they must be trapped and then trained in order to be used.

• [137] These asses running loose, called haoulil by the Ahaggar Tuareg,
have given rise to a legend of wild asses. On this subject, Gautier
cited the adventure of General Laperrine who had a "wild" ass
hunted by his Arab horsemen, only to notice later that the animal
had been castrated.

Although there are no more wild asses in the Ahaggar, it is
[172] nearly certain that there were some. They were pictured in the
rock drawings of the Djorat wadi, and some still exist in Abyssinia
where they are called "onager."

233 The ass is very much at home in the Ahaggar. It is possible
[174] that it was domesticated there. The legends of the Ihaggaren have
[173] kept the memory of the first inhabitants, the Issebeten, who had
only asses and goats.

442 In their short moves the Tuareg utilize asses to transport baggage,
and men and women also use them as mounts. The servants also
[312] take asses to replenish the water supply, making them carry the
[357] heavy waterskins on their backs or under their bellies.

262
237

The ass is never eaten, and its skin is not used.

233

The horse. -- The horse is not a Saharian animal. In 1929 there were four horses in the Ahaggar belonging to the aménokal.

[43]

Today there are about twenty of them belonging to the members of his family or to the notables of his camp.

644

[184]

This is an expensive luxury, for these animals must be fed with barley, and there is not enough barley for the people themselves.

262

It tends to replace the camel for the Sudanese Tuareg.

/254/ The zebu. -- A few years ago the aménokal owned a

[69]

small herd of zebus which he had had sent from the Sudan. This

[137]

animal is not raised in the Ahaggar proper, and it could not be, for lack of appropriate pasture.

[312]

The zebus serve in the agricultural centers by drawing water.

[427]

They are furnished to the tenant farmer by the proprietor of the land, and they are very poorly fed on hardship rations of hay and grass, or else they are put in rush pastures, which are generally plentiful in the agricultural centers.

[438]

When the animal is tired, the owner exchanges him if that is at all possible. The privations which the zebus must undergo bring about their death in a relatively short span of time, and so in the Ahaggar it is a question of keeping them alive rather than raising them. In any case, they never follow the camps in their moves and never live near them.

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When we talked about the camp, we told how the search for pasture directed its location.

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Insofar as animal husbandry properly speaking is concerned, we observe that the small animals -- sheep, goats, and asses -- always stay in the Ahaggar and move with the camp.

As for camels, this is not the case; they are often put out to pasture far from the tents, watched only by a few shepherds. The majority are even kept in the Sudan 800 kilometers from their owners'

Wood furnishes containers for food, drinking vessels, milking vessels, mortars, pestles, tent stakes, crosspieces and boards for making saddles. The Ahaggar does not have more than five or six species of woods which can be worked, and the articles, very simply shaped, are much less varied than in the Sudanese tribes. 322

All Ahaggar women, noble or vassal, know how to tan, remove hair from, sew, decorate, and embroider leather. They are able to make a waterskin needed to carry water, prepare skins to make tents, and manufacture bags for transporting food and personal objects. They have all become so expert in these labors that it is 281 462



Fig. 47. Amoula, a little wooden "bottle" for young children to drink from. [415 862]

difficult to find any other peoples in the world who possess such a developed leather craft.

The scarcity of vegetable materials in the Ahaggar is one of the reasons why the use of esparto is relatively restricted. Only the stems of a graminacea common in the wadies (Panicum turgidum) are used to make mats -- large enclosing mats which surround the tent, sleeping mats, mats for covering plates. [137] 285 [824]

/278/ The stems are bound by little leather thongs, and the combination of graminacea and leather is extremely effective; it allows very regular geometric decorations at the same time as a very solid work. [283] [531]

There are no esparto vans among the Tuareg. The women use palm-leaf vans and hats, but these articles are the work of the Harratin from the little palm groves of Silet, Ideles, and Abalessa. 291 415 438

423 celed out to Haratin sharecroppers although
 [427] some of them used to be worked by slaves.
 Since ownership of land is never outright in
 any case, each leaseholder must pay rent in
 one form or another to someone or other at
 least once a year.

565 Vassal clans usually pay annual tribute to
 651 their tribal chiefs or to the Amenokal, or
 both. This tribute includes such things as
 dates, millet, congealed melted butter, baby
 camels, sheep, goats and manufactured articles
 of various kinds, a share of all merchandise
 imported by the clan as well as a share of the
 profits from any caravan commerce they may
 have, and about half of any booty they may
 capture in independent raids. Each vassal fam-
 ily used to contribute towards the upkeep of
 a particular noble family, and the nobles in
 their turn, men and women alike, were con-
 stantly begging from their vassals who could
 hardly afford to refuse them. But if this beg-
 ging became unbearable, the vassals would
 sometimes pull up stakes and move quietly out
 of reach of their noble parasites.

651 Lhote (1955, pp. 190-91) says that all adult
 males, potential warriors that is, of the Ahag-
 gar confederation, were supposed to pay an
 annual head tax of 5 francs (then worth about
 4 cents) each to the Amenokal as recently as
 1948. Hunters annually paid in moulson for
 exclusive local hunting rights. After each har-
 vest each Hartani would pay a third of a
 bushel (more or less) of grain to the Amenokal
 for each garden plot that he worked, in
 addition to a share of the produce which he
 paid to the local leaseholder. But much of
 this fiscal system has fallen into disuse in re-
 cent years, for the Amenokal together with
 178 his whole camp is now supported almost en-
 tirely by the French Government, which also
 contributes free grain weekly to many of the
 poorer Haratin. Once more it is the middle
 class, the vassal Tuareg and the lesser nobles
 in this case, who suffer most severely from
 the stresses of cultural change.

238 Tuareg Economy and the Roots of the Class
 137 System. All Saharan nomads live primarily off
 their livestock, and livestock lives off pastur-
 age. There are two main kinds of pasture in
 the Sahara, the permanent growth of wiry
 yellowish grass, little woody shrubs and thorny
 bushes that one finds scattered very thinly

233 across much of the land and concentrated
 [137] along dry river bottoms, and the small patches
 briefly in hollows here and there following
 rainstorms. Pasturage is always either very
 sparse or very scattered in the Ahaggar and
 so the nomadic inhabitants of the area must
 move often, for the supply in the immediate
 neighborhood of a camp is quickly exhausted.
 [312] To make life still more difficult, water points
 are often few and far between as we already
 know, and it is not unusual to find good
 pasturage so far from any water that it cannot
 be used for more than a day or two, if at
 all. This combination of circumstances has
 233 made it necessary for the Ahaggar Tuareg
 221 to break up into small and highly mobile camp
 units composed of fractions of clans, or even
 single families, and each of these units must
 move at intervals of usually somewhere between
 a week and a month and often over
 considerable distances, although always within
 the territorial limits of the tribe (fig. 36).

As soon as a camp or constellation of neighboring camps is established in a new location, the head men first set up the daily grazing routine of the flocks and then set out at once to scout far and wide in search of the next pasture to be used and the next camp sites that their families will occupy. And so it goes the year around, and so the Tuareg of the Ahaggar are highly mobile nomads by force of circumstances, for they cannot survive otherwise in the region which they have made their own.

565 It is in the compelling circumstances of
 233 their environment that we find the roots of
 the class system of the Ahaggar Tuareg, for,
 463 quite apart from the question of mobility,
 such conditions can be met successfully only
 182 by a well conceived and firmly established
 division of labor. In the Ahaggar it is the
 nobles of a tribe and the headmen of the vassal
 clans who ride out in search of new pastures
 and at the same time act as military scouts,
 always on the watch for enemy raiders as

[423] *The fundamental difference between the two
 systems lies in the fact that the basis of land tenure
 among the Tuareg is not that of the *beneficium* while
 personal allegiance is not based on the concept of
 the *comitatus*. The true feudal system of medieval
 Europe was based on the conferring of privilege by
 an absolute ruler (or one of his vassals) on a less

The nobles eat better, at least those who are well-to-do. 262
 In the Ahaggar especially they own cultivated land in the 243
 "ar'erems" (villages), where they grow wheat, "ired," barley, 556
 "timzin," and bechna, "inelli"; but usually they sell their 565
 423
 438



Dautheville

Trees Called "Ahates" (Acacia
Albida) at the Tillemas of the
 Tessht Wadi (Koudia).

wheat and barley to the natives of the Tidikelt and are content
 with bechna, of which they are very fond. They claim that [824]
 bechna is less heating to the stomach than wheat or barley.

The rich allow themselves the luxury of drinking tea, but 272
 tea and sugar are very expensive, and they do not misuse them. 556
 On the other hand, they do not hesitate to beg for them shame- 263
 lessly.

When the year is bad anything seems good to the poor to 222
 assure their subsistence. In such years one sees them eating 262
 /30/ "berdi," or "taheli," (Typha angustifolia, Typhaceae); 735
 ground carob seeds of "talhas," or gum trees, which they call 252
 "tahaha" ••••• ; "tanékfaît" (Diplotaxis duveyrierana,
 Cruciferae); fruit of the "teborak" (Balanites aegyptica),
 which they steep to take out the bitterness; and even leaves
 of the "aremmas" (Atriplex halimus, Salsolaceae), which they
 boil.

In short, nature keeps food resources for them which pre-
 vents even the poorest from dying of hunger.

They use camel hair to make rope. They are fond of camel meat, and it is they who supply the markets of the Tidikelt with it. 237
243
262
439

There are very few cattle in the Ahaggar, barely thirty, and almost all these belong to Si Mokhammed ag Otsmane of Tazerouk. They are used to draw water from the wells into the ar'erems. The pasture is scanty, and besides the cattle easily wear out their hooves on the rocks and stones. 233
492
[312]

In the Koudia, because of the cold which prevails there and the high altitude, there are many small turrets of dry stones, /65/ empty inside, in which the Tuareg confine lambs and kids at night to shelter them from the cold. 233
343

The Ahaggar do not have a large number of meharis, and they do not like to sell them, especially the good ones. Among themselves, to set the value of a mehari, they say, "Such a mehari is worth two, three, or four camels." All their meharis are trained to start at a gallop. The Tuareg has great patience with the training of his mehari and never mistreats it. He confines himself to persuading it by voice and foot, and it is perhaps for this reason that the Tuareg mehari is much more silent than the Arab mehari. 233
[435]

The foundation of the pastures of the Ahaggar is aremmas (Atriplex halimus, Salsolaceae). This plant is quite laxative. So when the year is bad and drought prevails, the Ahaggar are found emigrating toward the Adhar'. There are fine pastures of "had" (Cornulaca monacantha, Salsolaceae) in the south of Tin R'arhou, but there is no water. Moussa ag Amastane /66/ intends to have wells dug there and has requested our help and advice for this purpose. 137
233
[312
648]

As a rule the Tuareg let their camels out to pasture without herders, and they find them again at the well or by tracking, unless they entrust the herding to children or negroes. 233

/67/ A young camel is called "abal" without designating its age. A camel in general is called "amadjour," plural "imoudjar," or else "amiss," plural "imnass." A female is 192
233

4: Benhazera--64a G-5(1905) 1908 MS25 Tuareg MS25
Hoggar

137
291



A Fig Tree at Abalessa

104 212 Tuareg Letters (Tifnagh)	Transcription And Value In Arabic Letters	Notes
:	غ	Pronounced gutturally. Frequently transcribed as gh in literature.
⊙	س	
+	ت	
☋	ط	Emphatic
✱	ز	
✱	ز	Emphatic

- 128 For certain geographical names the mode of spelling is in accordance with that of the maps edited by Institut Géographique National. The pronunciation of vowels is not indicated. At the end of words the Tuareg sometimes indicate vowels [212] with a dot, which may stand for any vowel.

Pastoral Ecology in Ahaggar and Air.

- [36] The Tuareg of the true desert country have their camps in or close to mountain massifs of which the more important are Ahaggar and Tassili-n-Ajjer. Geographically [13] these two regions have many traits in common. In Ahaggar, which rises to 132 3000 metres above sea level, the annual precipitation according to official statistics is between 20 mm and 40 mm. These figures are extremely low, but more characteristic of the desert country is the irregularity of the rainfalls. In some years there may fall no rain at all, while in others precipitation is much bigger than appears from the figures above. Several dry years may follow each other alternating with periods of abundant rainfall. According to investigations by Dubiéfour years out of ten are so dry that rainfall is of no importance for the regeneration of pastures (Dubiéfour 1947, p. 7-23). Owing to the scarcity and the fluctuations of precipitation • 137 in Ahaggar a persistent vegetation cannot generally exist outside river valleys and depressions which are flooded during heavy rain. In the valleys perennial plants comprise not only grasses and herbs but also tall trees among which tamarisk and acacia are prominent. In dry years the perennial plants have little value as fodder 233 for the domestic animals of the Tuareg. A great many goats may then die from 221 hunger, and to avoid such a disaster some Tuareg take their flocks to the plains of Tamesna or to the Adrar-n-Iforas Mountains where rain is normally more plentiful and grazing better than in Ahaggar. However, even in dry years the majority of Ahaggar Tuareg will remain in their native country with their goat-flocks. For although they run the risk of losing a great many goats during a drought in Ahaggar

Ahaggar
Air

During drought periods the uttermost poverty is the lot of the Ahaggar Tuareg, who must then rely almost exclusively on agricultural products for their nourishment. But in years of abundant rainfall they have much milk during the winter, and they make butter and cheese to be used during the hot season when milk even in good years is scarce. They then also have meat for their sustenance but this is less important than milk-food.

In good years the perennial plants do not form the most important fodder of the domestic animals. For heavy rainfall will as if by magic change the barren country outside the valleys. An extremely rich vegetation of annual grasses and herbs springs up, and these tender plants constitute the very best fodder. But as, owing to the irregularity of the rainfall, annual pastures will not appear every year, it is difficult to breed other animals than goats and camels to which can be added donkeys used exclusively as beasts of burden and for riding. It is true that most Ahaggar Tuareg have a few sheep but none of them have cows (zebus). Cow-breeding and also effective sheep-breeding cannot be practised in a country like Ahaggar where for a period of years there may be no pastures of annual plants. In dry years the thorny acacias form the most important fodder of camels and goats, but the leaves of these trees cannot be eaten by cows and only with great difficulty by sheep.

In Ahaggar rain may fall at most seasons as the country is situated on the frontier of two different rainfall belts, namely that of the Mediterranean where rain occurs mainly in winter, and that of the Sudan where rain will fall late in summer. For a long period of years rain has fallen most abundantly late in summer, but according to Dubiéf this has not always been so. Not many years ago rainfall was almost equally common at all seasons (Dubiéf 1947, p. 7-23), and Ahaggar still has the characteristics of two distinct climatic zones, likewise as botanically it belongs both to the Mediterranean and to the Sudan.

On my camel journey from Ahaggar to Air via the wells of In Ebeggi and In Azaoua in April 1955 I experienced a rapid change of climatical and botanical conditions. At the outskirts of the southern slopes of the Ahaggar Mountains a persistent vegetation is very scarce in the valleys, and between the two above-mentioned wells there are practically no permanent plants. Broadly speaking the desert region between Ahaggar and Air is nothing but plains of gravel and stone interspersed with rocks and hills. But a little scattered rain will occur even in these regions and gives rise to annual pastures which are utilized by passing caravans. Otherwise the country is uninhabitable.

In the northernmost part of the Air massif acacias and tufts of perennial grasses grow in most valleys as in the lower parts of the Ahaggar Mountains. But compared with Ahaggar permanent vegetation is very rich and in places forms almost impenetrable jungles of trees and brushwood. Further south in Air perennial plants including trees are very common also outside the valleys, and the country south of the massif very rapidly changes into a kind of steppe or open savannah. The com-

paratively rich vegetation of Air contains species found also in Ahaggar, but Ahaggar has Mediterranean plants including several saline species which do not thrive in Air, where there are tropical or Sudanese species unknown to Ahaggar. 137 ●

Botanically Air is very closely connected with the Sudan, and the mountain massif is within the Sudanese zone of summer rain. It is true that rain at the northern outskirts of Air occasionally falls in winter and may then give rise to scattered pasture of annual plants, but these rains are of no real importance. The important rainfalls of Air occur in the period June-September, and particularly in July and August. As may be gathered from the description of botanical conditions, Air has a much bigger annual precipitation than has Ahaggar. Thus the village of Ifrouan in Northern Air has 74 mm, while Agadez at the southern slopes of the massif has 179 mm. Precipitation will of course vary from one year to the other, but rain will always fall sufficiently for the spring of annual plants. This is the reason for a type of stock-breeding different from that of Ahaggar. In Air the Tuareg are richer in camels, they do not possess so many goats but are very rich in sheep, and most of them have zebu. 132 137 [233]

The climatic and botanical differences of Air and Ahaggar can be seen more directly from the division of the year into seasons (fig. 2). Air has a summer and a winter season between which there are two seasons termed *akasa* and *rarat*. These two words as seasonal terms express the fact that rain and annual pastures in Air are recurrent events, as the word *akasa* literally means "green annual plants", and the word *rarat* refers to "dry annual plants". Both words are known also to the Ahaggar Tuareg but are by them not applied as seasonal terms, for in their country rain will not occur every year and may fall at most seasons. 132 805

Conditions for stock-breeding are very much better in Air than in Ahaggar, but the latter country has a few superior qualities:— 1) Part of the year Ahaggar has a comparatively cool climate which is said to have a positive influence on the lactation of domestic animals. 2) In Ahaggar all over the country there are saline pastures which play an important part in stock-breeding — not because these plants are very nourishing but the animals do not thrive without salt. In Air saline plants are very rare and found mainly to the south and south-west of the massif where water and soil also contain salt. Many pastoralists will migrate to these regions shortly after the rains, while people who do not undertake such migrations feed their domestic animals with salt. Camels and cows have a particular need for fodder with a salt content. 3) Ahaggar has richer wells and a greater number of permanent ponds than Air. This may seem rather peculiar as precipitation is much bigger in the south than in the north. In Ahaggar and Tasili-n-Ajjer some ponds may contain fish apparently unknown in Air. In the latter country there are a great many ponds or even small lakes during the rains but they dry out very quickly when rainfall ceases. Water in Air most of the year is drawn from wells many of which go dry during the hot season; this will frequently lead to quarrels between nomads. 233 [132] [135] [137] [221] 312 [136] [578]

Spring of certain
perennial plants.

Very hot.
All pastures dry.
Normal season of defoliation
of acacias.
Wells go dry.
Dry annual plants form the
best pastures.

Beginning of the rains.

Rainy season.
Spring of annual plants.
Temperature decreases owing
to the rains.
Water abundant in ponds.
People suffer from malaria.

Rainfall stops.
Most annual plants are
drying and ponds go dry.
Increase of temperature and
very hot winds in daytime,
while nights are cool.

Cool season begins.
Frost may occur during night,
while snow is said never to fall.
Acacias are green and form
good pasture together with
dry annual plants.

Spring of certain perennial
plants.
Considered neither hot nor cold.

Very hot.
Pastures of all perennial and
annual grames and herbs
are dry.
Acacias are green and form
the best pastures.
Rain maximum - if rainfall
occurs.
Spring of annual plants
after rain.

Neither hot nor cold.
Pastures of green annual plants
in case of rainfall.

Annual pastures become dry.

Normal season of defoliation
of acacias.
Dry annual plants form the
best pastures.
Frost is very common during
night, and snow may fall in
the mountains.
All winter people suffer much
from colds, and deaths owing
to pneumonia or similar
diseases are not uncommon at
the end of the winter season.

FEB. MAR. APR. MAY JUNE JULY AUG. AIR TUAREG
TASIT AOULEN TESOUAN AKASH-IL
OCT. NOV. DEC. JAN. FEB. MAR.
RAKAT TIGREST

FEB. MAR. APR. MAY JUNE JULY AUG. AHAGGAR TUAREG
TASIT AOULEN ANEQUAN
OCT. NOV. DEC. JAN. FEB. MAR.
TIGREST

132
137
812
805

[161]

[164]

Fig. a.-Division of the year into seasons among the Tuareg of Air and Ahaggar. Climatic and botanical characteristics are indicated. (The proper spelling of *tigrest* (tigerest) is *tigrest*, (tigerest) while *arakat* should be written *arakat*).

and giraffes are found in the plains immediately south and west of the massif. I do not wish here to compare in detail the natural history of Air and Ahaggar. But I wish to emphasize the fact that climatically, botanically, and zoologically an important dividing line runs between these two Tuareg countries. This should not be overlooked in an anthropological description of these parts of Northern Africa.

At present both fair-skinned Europids and black-skinned negroid people live all over the Sahara, and are frequently mixed. There seems to be little doubt that in the north most negroes have come in with the slave trade. We cannot entirely exclude the possibility that part of the northern negroes constitutes an ancient population of the Sahara (cf. Capot-Rey 1933, p. 167 ff.), but in Ahaggar the negroes seem to have arrived later than the fair-skinned Berbers. Until a hundred years ago all negroes of Ahaggar were apparently Tuareg slaves bought or captured in the Sudan, but the negroid Haratin then immigrated from Tidikelt to make gardens for the Tuareg. They introduced the irrigation systems known to the Tuareg as *efeli*, to the Arabs as *faggara* (i.e. irrigation by means of subterranean aqueducts), but the solid houses built of mud (*tafahamt*) so characteristic of the northern oases were apparently not introduced by the first immigrants of Haratin, but later. Another immigration of negroid agriculturists came from Tamall-n-Ajjer and in particular from the oasis of Djanet. It is not quite certain whether they came before or after the Haratin. They are said to have introduced irrigation by means of wheels (*tanout*) from which water is drawn by zebu (or donkeys), and two particular types of dwellings are also ascribed to them, namely a subterranean or semi-subterranean dwelling (*edamous*) and a square hut (*eker*) covered with straw or rushes. Immigrations of predominantly negroid agriculturists from Tidikelt and Djanet take place also in modern times, but all the present agriculturists do not descend from immigrants of these regions. A large part of them are descendants of Tuareg slaves manumitted by their masters.

Negro slaves have also been introduced from the Sudan to Air by pastoral Tuareg, but there is no doubt that Air originally was a pure Sudanese country anthropologically, as it is Sudanese with regard to climate, botany, and zoology. In other words, the oldest known inhabitants of Air were negroes while the fair-skinned Berbers have arrived at a later date. It is stated both by Nicolas and Urvoy that Air before the Tuareg was inhabited by negroid Hausa or Proto-Hausa (Nicolas 1930a, p. 45. - Urvoy 1936, p. 138 ff.), and Barth claims the word *Air* to be relatively late and of Tuareg origin, the word *A:ben* also used as a name of the massif to be of Hausa origin and older (Barth 1857, I, p. 369). My investigations fully confirm these statements. All Tuareg questioned about the history of Air seem to admit that the negroid agriculturists have lived in the country before the Tuareg, and there are in the Berber dialect spoken by these people a great many Hausa words. It is, I think, of particular interest that the negroid village population of Air is said to have a kinship system quite distinct from that of all true Tuareg while



Fig. 3.—Mat-covered tent typical of the pastoral Air Tuareg. The tent in this photograph is inhabited by the Kel Ferouan drum-chief. It is a very simple dwelling compared with the Sultan's palace containing two storeys and several rooms. Nevertheless the Kel Ferouan drum-chief in the time preceding the French occupation was politically more important than the Sultan. The photograph is taken in the plains north of Aderbissinat at the end of the rains. Annual grasses of a high value for fodder are growing between the scattered trees and bushes of thorny acacias, which are also valuable fodder-plants for camels and goats.

Kel Ooui formed the important political units of Air. The Kel Fadei and the Kel Ferouan at the establishment of the Sultanry had not yet arrived or lived at the northern outskirts of the massif.

In the 19th century the Kel Fadei and the Kel Ferouan paid very little respect to the Sultan. At the time of the French occupation the Kel Fadei even had the impertinence to collect the Sultan's dues from the village of In Gall (Jean 1909, p. 162), and Barth mentions that the Sultan was afraid that the Kel Fadei would detach themselves from him to make an alliance with the Ioullemmeden (Barth 1857, I, p. 478). As for the Kel Ferouan their chief was the most prominent leader of all Air. This is clearly documented by Jean (Jean 1909, p. 103f.) and it is told over and over again by all Air Tuareg to-day. Barth states that the Sultan when away from Agadez on journeys was replaced by the Kel Ferouan drum-chief, and he thinks that the Kel Ferouan originally formed the noble family from which the Sultan or Amenokal was chosen (Barth 1857, I, p. 385). This agrees with information I have gathered among the noble Kel Ferouan, who will also claim that their clan came to Air before all other Tuareg. The truth however seems to be that they had originally nothing to do with the Sultanry. They took up grazing

[text continues on p. 87]

133 /18 cont. / has finished cutting its bed; they have rapids and sometimes waterfalls where they cut a passage between two Adrars. At these spots, the water stands in permanent pools called gueltas. Certain of these gueltas (Issakarassène, Afilal) contain fish and are surrounded by luxuriant vegetation that contrasts sharply with the aridity of the country.

This region of the Atakor strongly impresses the traveler with the unbelievable hues taken on by the mountains during the course of the day. The wild majesty of the mountains calls up an anxiety hard to dismiss when one is traveling along acacia-lined wadis, guided by a veiled Targui, silent and supple, mounted on a camel whose padded tread blends with the uneasy silence. The zone of the peripheral trench, in which the relief is not very marked, has large regions which are nearly flat and which are often covered with a thin layer of sand. Sometimes small massifs cut the horizon, or, to the side exposed to the prevailing winds, a dune looms up: the Adrar Bourzekal is an example of this. Sometimes granite hills in the form of perfect domes, polished, shining, and mellowed, seem to surge from the horizontal sweep (Tesnou, Iniker, Ahéléheg), or there may be a colossal accumulation of glittering blocks and of nearly geometric forms, which give an appearance of ruins to these garas /flat-topped buttes left through erosion/ 60 to 100 meters high, as at In-Tédéini, or near Ideles, or in the region of the Debna.

In this zone the wadis coming from the Atakor spread out to such an extent that one can no longer distinguish any definite valley: it is more accurate to speak of distribution basins in which the water brought down by rather powerful floods meanders along in no fixed pattern. The passage of the water is sometimes marked by dry grasses and some rare
● [137] tahlas /Acacia tortilis/. One again finds a valley where the wadi breaches a rocky barrier by cutting a straight groove through it, and beyond there is another basin. The basins become larger and larger as the distance from the Atakor

132/19 cont. / to the zones of the relief. Let us note, however, that /20/ the tassilis of the south are subject to conditions of wind and rain different from those of the tassilis of the north. Before studying the climatic zones, it is well to sketch in the general characteristics common to all the zones.

The climate is generally of the continental desert type, due to the location of the country.

The Tropic of Cancer divides the territory of the Ahaggar in two; the sun mounts to its zenith, giving the country a Sudanese influence in the form of summer clouds which sometimes condense into stormy rains: "tornado tails." This Sudanese monsoon rarely manifests itself north of the Tropic.

In winter a fairly regular predominance of northwest winds makes possible the transport of Atlantic or Mediterranean rains, which rarely affect the south:

If we turn to consider the different climatic zones, we see that the Atakor is, because of its high peaks, the center of distribution for the waters which condense in the mountains when, by chance, the clouds are low enough. Cloud systems are relatively frequent and often large, but they seem to climb when they reach the mountainous region. The altitude moderates the summer heat, and winter brings light snowfalls on the summits nearly every year. One sees only in the Atakor an

• [137] outlying sample of Mediterranean flora, a wild olive tree: Olea laperrini. In descending toward the peripheral trench, one encounters the kranka (Callotropis proscera), an essentially tropical shrub. Then, at the border of the central mountains, one finds the fruit-bearing palm at Silet, Abalessa, In-Amguel.

Observations of the meteorological station at Tamanrasset have been used to make rain and temperature graphs, which may be found in the appendix. Information is lacking for the war period. The climate is characterized by the regularity of the temperature and the extreme irregularity of the rains. The heavy rains, however, nearly always fall in summer or winter; when there are rains in both of these seasons, there is a rainy

312 /29 cont./ shallow wells are found in agricultural centers; generally, they are upstream from the rock shelves. The water is drawn by men or, most often, by an ox, in which case a rudimentary scaffolding supports a pulley by which a goatskin full of water may be drawn up and dumped into a basin by an ingenious system.

The last method used to tap underground water is the foggara, called by the natives the "efeli" (plural: "ifelan"). The foggara is used only to irrigate gardens; we shall see how it works when we study agriculture.

Flora and Fauna

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[114] The flora of the Ahaggar is more varied than that of the northern Sahara. The work of M. Maire constitutes the basic study one should refer to for information on the spontaneous vegetation. The list of plants given in the appendix was established by questioning the Tuareg in order to learn the varieties most often encountered. Very incomplete as far as herbaceous vegetation is concerned, this enumeration includes the vast majority of trees growing naturally.

There is no forest in the Ahaggar. However, information from the Kel Immidir Tuareg makes it possible to suppose the existence of a wooded stretch in the Ifetessen massif, a region still not thoroughly explored in its entirety. Perhaps it may merely be a case of wadis covered with a particularly luxuriant vegetation. In the Ahaggar almost all the flora grows in wadis. A few plants also grow on the most watered high summits, and, at the time of particularly propitious rains, the regs are covered with patches of acheb /pasturage/, which resemble a thick, sprouting beard.

The distribution of the spontaneous flora in the Ahaggar obviously /30/ is related to the climatic zones we have already discussed. There are some plants which are peculiar to a specific zone, while there is an interpenetration of most of the other vegetation.

• 137 /30 cont./ In the central Ahaggar, the Atakor, and the Tefedest, a zone of high elevation, one sees plants of Mediterranean origin, such as the wild olive (*Olea laperrini*) and the oleander. *Artemisia* and the "takamezout" of the Tuareg are also characteristic of this region.

At a lower level, in the zone which surrounds the central massif, the Sudanese influence is manifested in trees and shrubs such as the thora, the tebourak, and various kinds of acacias, the tabrakat and the morakba. One also sees there Saharan plants: the palm, the fersig, the drinn. And there are some traces of the Mediterranean influence: *artemisia*, oleander, and reeds. In brief, it is a zone of transition.

The vegetation of the peripheral trench is purely Saharan; a little acheb grows on the regs when it rains; the drinn, the had, and the guetaf invade the wadi beds. One also finds, here and there, morakba and a few tahlas.

The tassilis of the north, with their humid and well-boxed-in wadis, have a flora with Sudanese affinities along with Mediterranean and Saharan plants, while in the southern tassilis and the Adrar des Iforas the influence is very clearly Sudanese. In these latter two regions, the tahlas, still scattered, grow on the slopes outside of the wadis. In the wadi beds, one sees numerous tebourak, some thoras, tabrakat, and various acacias. The morakba grows abundantly in the small ravines as well as in the large wadis. Lastly, a luxuriant growth of gergir, reminiscent of the prairie, covers the wadis after it rains.

In the region of high altitudes, one sees mosses and lichens, as well as mushrooms. After rain, terfes (Saharan truffles) develop.

Near running water, one notes the presence of a special flora: mosses and lichens, false mint, reeds, rushes and tahlis, and couch grass grow profusely. The water itself contains algae and various aquatic plants.

136 /31/ The diversity of the flora would lead one to expect a great variety of fauna. Saharan animals do, in fact, live

6:Blanguernon--162 Y-5 (1937-1954) 1955 MS25 Tuareg MS25
Hoggar

/175 cont. /

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Arak wadi
Gourdane wadi
Tadjmout wadi
Tiratimine wadi
Tibratine wadi
Takoula wadi
Takoumbaret wadi
Asaba1 wadi
Amguid region, slope of the Igharghar:
et Tarara wadi
Hesses wadi
Rharis wadi
El Mahek wadi
Teghert wadi
Hamsa wadi
In-Herreki wadi

Region east of the Serkout massif:

This part of the Ahaggar is very little known; the wadis
are tributaries of the Tafassasset wadi.

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V

Flora

137
824

Tamahaq
Name

Arabic
Name

Miscellaneous Observations

Ahtès
Aliou

Acacia albida. Rare.
Olea laperrini. In the high
mountains.

Adjjar

El Iatim

Argan tree (?). Hardwood,
pasturage for camels, edible
berries.

6:Blanguernon--163 Y-5 (1937-1954) 1955 MS25 Tuareg MS25
Hoggar

/177 cont. /

137 Tamahaq
824 Name

Arabic
Name

Miscellaneous Observations

Azaoua	Fersig	<u>Tamarix gallica</u> . Good pasturage. <u>Khecba</u> for roofing, <u>zéribas</u> .
Taberkat	Ethel	Softwood, used for bowls and spoons, salty pasturage; the fruit colors leather red.
Tamat	Tahala	<u>Acacia seyal</u> . Good pasturage, hardwood.
Absaq	Tahla	<u>Acacia tortilis</u> . Good pasturage, hardwood.
Teborak	Techat	<u>Banalites aegypticae</u> . Used for common objects; edible fruit, cough remedy.
Tihok	Irak	Shrub, softwood, used for clean- ing teeth.
Telothat		Firewood.
Tedjert	Tedjert	<u>Acacia eburnea</u> . Seeds used in tanning; thorns; nails for <u>rahla</u> /camel's saddle/.
Tezzeit	Nakhla	Palm.
Thora	Kranka	<u>Callotropis proscera</u> . Wood for <u>rahla</u> ; the sap causes ophthalmia.
Tehounek	Jeddari	Found in the Atakor. Firewood; used for tanning <u>guerba</u> /waterskins/.
Assellouf	Elhelhab	
Tarkat		Fruit which tastes like grapes, size of a jujube.
Edjaq		Hardwood, used to make rosary beads.

6:Blanguernon--164 Y-5 (1937-1954) 1955 MS25 Tuareg MS25
Hoggar

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137 Spontaneous Flora -- Herbaceous Vegetation -- Pasturage

824

Tamashek Name	Arabic Name	Miscellaneous Observations
1. Tiberimt	Lemmet	Pasturage for asses, to a small extent for goats, tastes like celery (umbelliferous).
2. Ennedam		<u>Acheb</u> /pasturage/ plant.
3. Tamadi		<u>Acheb</u> plant.
4. Tamedout		<u>Acheb</u> plant.
5. Azrem	Merkad	<u>Acheb</u> plant.
6. Ourroug	Errega	<u>Acheb</u> plant.
7. Tahaout	Rguig	<u>Acheb</u> plant.
8. Tahnetnet	Tafsa	Perennial plant.
9. Afessour	Cheretk	<u>Acheb</u> plant.
10. Tanesmimet	Hamoued	<u>Acheb</u> plant; acid.
11. Afazzou	Morakba	<u>Panicum turgidum</u> . Seeds eaten by the Tuareg; used, with straw, for making wind-breaking mats (<u>asaber</u>).
12. Akafouad	Jonc	<u>Typha augustifolia</u> . For goats.
13. Akecheker		Thorny plant. Permanent pasturage.
14. Adrilal		<u>Astragalus prolixus</u> . A sort of wild pea, very good pasturage.
15. Alemmoz	Nçi	<u>Aristida ascencionnis</u> . Very good pasturage, in the zone of the peripheral trench after the rains.
16. Telemmoust	Sfar	Very good pasturage. Zone: same as above.
17. Aslak	Habalia	<u>Acheb</u> plant. <u>Héliotropium undulatum</u> .

6:Blanguernon--165 Y-5 (1937-1954) 1955 MS25 Tuareg MS25
Hoggar

/178 cont. /

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824

Tamashek

Name

Arabic

Name

Miscellaneous Observations

- | | | |
|----------------|------------|---|
| 18. Imatelli | | <u>Acheb</u> plant. |
| 19. Askaf | Damrane | <u>Traganum midatum</u> . Very scarce in the Ahaggar, region of Tiffert. |
| 20. Tadjemaït | Njem | Couch grass, near water points, mediocre pasturage. |
| 21. Affelleleh | Bettina | Henbane. C uses madness for two or three days; its smoke is somniferous. |
| 22. Aressou | Arta | Good pasturage. |
| 23. Amateltel | | Climbing plant, particularly on acacias, the size of a vine. Good pasturage. |
| 24. Atarzim | Ghardek | Lotus of the Lotophagi (?) according to Duveyrier. |
| 25. Alaouat | Gergir | Very good pasturage. In the large wadis after floods. Peripheral trench and lforas. |
| 26. Aremmas | Guettaf | <u>Atriplex alimus</u> . Laxative, very salty, mediocre pasturage. |
| 27. Tabakat | Sedra | Jujube tree, <u>Zizyphus lotus</u> . Average pasturage, except for asses. /179/ |
| 28. Aïmes | Guesba | Reed. |
| 29. | Defla | Oleander (poison, except for goats and gazelles). |
| 30. Tedjellit | Coloquinte | Colocynth. Gazelles, goats, asses. |
| 31. Alagoz | Hadjia | Sweet colocynth, edible. |
| 32. Aftezza | Chebrok | <u>Zilla macroptera</u> . Very good pasturage. |

6:Blanguernon--166 Y-5 (1937-1954) 1955 MS25 Tuareg MS25
Hoggar

/179 cont. /

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824

Tamashek Name	Arabic Name	Miscellaneous Observations
33. Issin	Djell	Fairly good pasturage.
34. Rellachem		Grows in the mountains, scarce, remedy for gonorrhea and cough.
35. Tahara	Hâdd	<u>Cornulaca monacantha</u> . Very good winter pasturage, poor in the summer.
36. Ana	Merkh	<u>Ginista saharae</u> , broom. Very good pasturage.
37. Tadjerdjert		Purgative. Fairly good pasturage.
38. Tahiart	Tinhart	In the <u>seguias</u> /irrigation canals/ of the agricultural centers, used to perfume tea.
39. Tahli	Berdi	<u>Formium tenax</u> . Type of large reed which grows near the <u>tiggerts</u> /natural outflows of water/; pasturage for goats. In times of scarcity, the heart is eaten.
40. Tatberou	Bouzaka	Poison, rare (Atakor). No antidote.
41. Tassa	Elbaguel	Mediocre pasturage.
42. Tanatfert	Ghatassa	Makes milk bitter.
43. Toulloult	Drinn	<u>Aristida pagens</u> . Very good pasturage, seed edible in same way as that of <u>afazzou</u> (three parts to one of wheat).
44. Teferte	Tesskra	Thistle, scarce, good pasturage.
45. Takamezout	Chedengoura	Only in the Atakor. Sure cure for dysentery; yields 14 remedies.

6:Blanguernon--167 Y-5 (1937-1954) 1955 MS25 Tuareg MS25
Hoggar

/179 cont. /

137 Tamashek

824 Name

Arabic

Name

Miscellaneous Observations

46. Zezeri	Zahta	Atakor. Is put in tea.
47. Tihéréguéli	Chih'	Perfumes tea, remedy for colic.
48. Amiou	N'gouth	Good pasturage.
49. Tamadjéhi	Kroumt	Very good pasturage.
50. Tata'lt	Elgouzah	Good pasturage.
51. Otaq	Mrenza	Mixed with crushed dates, fattens women. Bad odor.
52. Tedjourt	Hallala	Remedy for gastric troubles.
53. Terfes	Terfes	A sort of truffle.
54. Aliouen	Denoun	A sort of large asparagus.

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VI

Tools

412 Here is a list of tools used by the maalmine; many of them are made by the users:

Tisadh: double-pocketed bellows.

Abaracha: piece of wood 50 x 20 x 6 centimeters, serving as support for an iron mass used as an anvil.

Tehount: iron mass 6 x 6 x 15 centimeters used as an anvil.

Afadis: hammer.

Tafadist: small hammer.

Irendan: tongs.

Takadimt: adz.

Tataout: chisel for wood.

Tadouft: ax.

} Neolithic-type hafting.

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7. Oleanders bordering the Issakarassène guelta.

[p. 192]

6:Blanguernon Y-5 (1937-1954) 1955 MS25 Tuareg MS25
Hoggar

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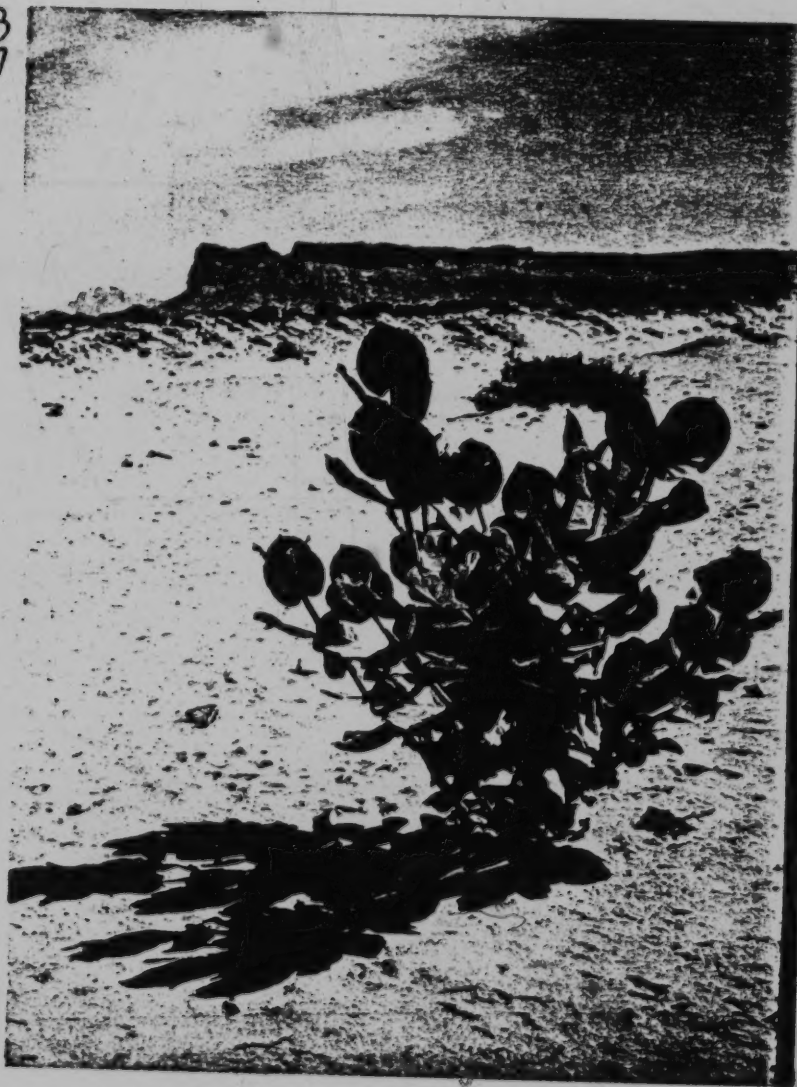


11. A tesendgelt (Eragrostis bipinnata).

[P.196]

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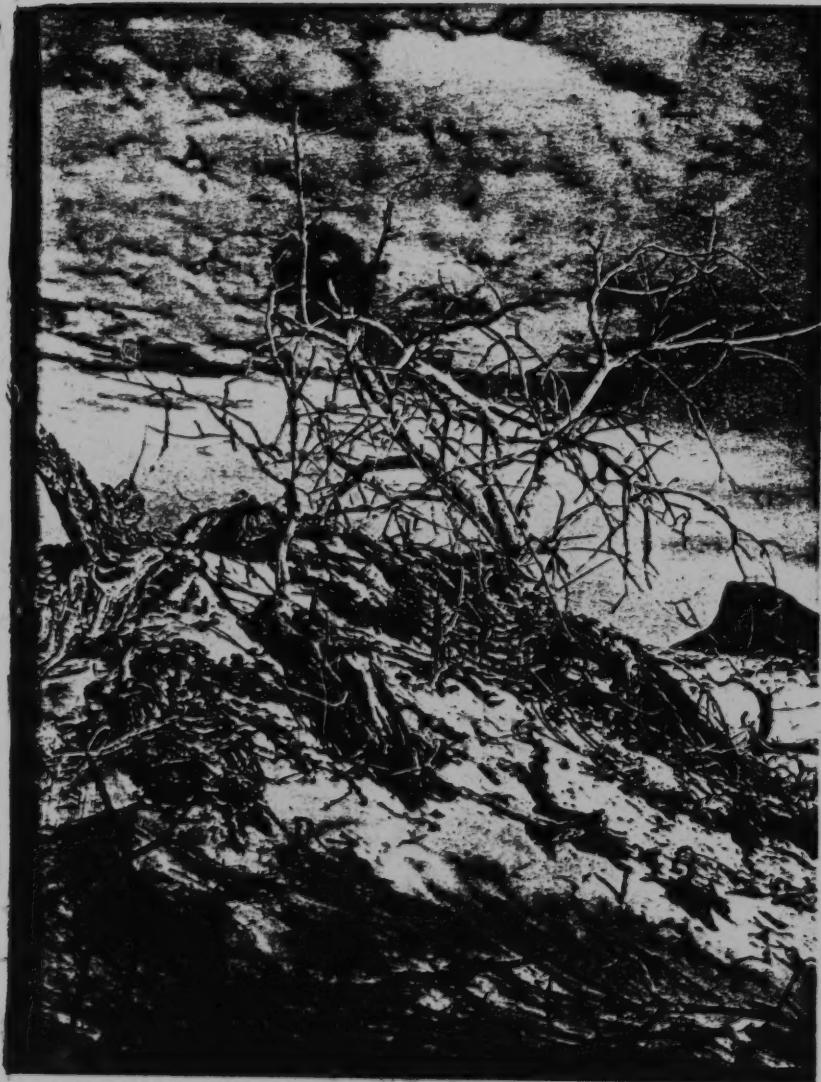
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13. A thora (Callotropis proscera) in the Tamanrasset wadi.

[p. 198]

•137



14. Dead tabrakat in the Amed wadi.

[p.197]

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24. Apricot trees and poplars at Tamanrasset.

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• 137



25. Fig trees and tamarisk.

[p. 213]

Environment

Tuareg country ranges from comparatively fertile savannah in the south to barren desert in the north, where the nomads live in or near mountainous regions. Four Tuareg groups are named after the dominant mountains of the Western Sahara, namely those of Ahaggar, Tasilé-n-Ajjer, Adrar-n-Foras, and Ayr. ¹³³ [10]

The mountains of Ahaggar are by far the highest. They consist predominantly of archaic and proterozoic rocks, and of basalt and tufa from a relatively recent period. They are generally of a very dark colour and characterized by formations of rugged ranges, craters and isolated peaks which also bear evidence to former volcanic activity. But the rugged contours of the Ahaggar Mountains are also created by a complicated network of river valleys eroded mainly during the pluvial periods contemporary with the European Ice Age.

The Ahaggar Mountains fall into three main massifs of which that named Atakor is the most important and the highest, with peaks up to 3000 metres above sea level (Ilamas, Tahat). To the north is the massif of Tefedest with peaks which surpass an altitude of 2000 metres, and to the east the lower massif named Anahel. In geological structure these three mountain massifs of Ahaggar differ from the mountains of Ahnet, Immidir (Mouydir), and Tasilé-n-Ajjer which surround Ahaggar in the north. These latter massifs consist predominantly of paleozoic sandstone. They are not so high above sea level and form comparatively flat plateaux. The maximum altitude of Ahnet is 1300 metres while the peaks of Immidir rise to 1680 metres. The extensive plateau of Tasilé-n-Ajjer is on average 1200 metres above sea level, but a few peaks in the south exceed 2000 metres. Parts of the Tasilé-n-Ajjer mountains are covered with basalt rocks, and the river valleys of the comparatively level plateau often form true canyons which make traffic much more difficult than in the higher and more rugged mountains of Ahaggar. Between and around the northern mountain massifs the country consists mainly of flat plains covered with gravel and stone. Extensive areas of sandy desert are rare except in parts of the *Kel Ajjer* territory. [37] ●

Far to the south of Ahaggar are the low mountains of Tasilé-ta-n-Ahaggar, which are structurally related to the *tasilé* mountains in the north. This area is of little importance to the Tuareg and, in contrast to the higher and more extensive massifs of Adrar-n-Foras and Ayr, is not regularly inhabited. [31] While the mountains of Adrar-n-Foras are everywhere below 1000 metres, the peaks of Ayr rise to almost 2000 metres above sea level in the east and the north where the country is covered with basalt rocks. Idukalen in the Begzen Mountains is 1900 metres above sea level, while the Tamgak Mountains in the north have a maximum altitude of about 1800 metres. In its most mountainous parts the Ayr

Climate

27

Kel Ahaggar

Iwallen	18.6
Édeles	18.9
Tamanasset	40.7

Kel Ajer

Bat	11.4
Ft. Flatters	13.7
Ft. Polignac	17.6
Ganet	17.8
Radames	37.8

Kel Adrar

Agelhoc	75.0
Kidal	123.2

Kel Ayr

Iferwan	74.1
Agadez	179.3

Iwllenmeden Kel Ataram

Burem	172.0
Meneka	221.5
Gao (Gewgo)	233.9

Iwllenmeden Kel Dennek

Tawa	351.4
----------------	-------

Kel Geres

Tessawa	525.0
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Thus the annual precipitation in Tuareg country ranges from 11.4 mm in the north to more than 500 mm in the extreme south. In the territories of the Southern Tuareg there is a fixed rainy season in summer, and although the annual precipitation may vary from one year to another there will always be enough rain for the regeneration of perennial plants and the sprouting of annual herbs and grasses. The territories of *Iwllenmeden* and *Kel Geres* largely consist of savannahs where trees and grasses grow over extensive plains. Compared with this we have entirely different conditions in the north, where the territories of the *Kel Ahaggar* and the *Kel Ajer* are situated on the extreme frontiers of two different rainfall belts, namely that of the Sudan where rain falls in summer, and that of the Mediterranean with a wet season in winter. Therefore there is no special wet season for the whole country of the Northern Tuareg, the most northern parts of which have maximum rain late in autumn or in early spring, while the southernmost regions have summer rain like the Sudan. Rain from the north may however occasionally penetrate as far into the Sahara as the northern outskirts of Ayr, where during my journey from Ahaggar to Ayr in April 1955, I found pastures of annual plants due to winter rain. As far as Ahaggar is concerned rain has, over an extensive period of years, fallen most abundantly late in summer. But what is characteristic of this region as well as of the territory of the *Kel Ajer* is the fact that rain does not fall every year. In Ahaggar, including the northern massifs of Immidir (Mouydir) and Ahnet, four years out of ten are almost completely dry (Dubief 1947, p. 7-23), and in the flat plains outside the mountains many years may pass between two rainfalls on one and the same spot. These plains have little or no vegetation of perennial plants and are known to the Tuareg as *ténére* or *tanezruft*. In or round the mountain massifs there is always a better possibility of rain, and when rain falls in Ahaggar late in summer it is normally accompanied by violent thunder-storms and is very heavy. This in conjunction with the morphology of the mountains makes a perennial vegetation possible.

132 When rain is falling in Ahaggar water immediately flows down the rocky mountain slopes into the sandy river valleys, which may become flooded shortly after rain has started. Indeed, the flood will often rise so suddenly and violently that camels and other animals grazing in the valleys are caught by the strong foaming stream of water. Even humans have been killed by the sudden rise of a flood, but most people will not camp in the river bed itself late in summer when heavy rainfalls are expected to occur. A river valley will generally not be flooded for more than one or two days, but it may, after extremely heavy rain, contain water for a week or even longer. This was the case in the summer of 1953 when the valley of Abalessa in Ahaggar turned into an immense river more than a hundred metres wide. Owing to such heavy rainfalls it is possible for perennial plants with a well developed root-system to survive near the river valleys even in dry years. Outside the river valleys there is very little vegetation of perennial plants in Ahaggar. The bulk of the country has no permanent vegetation, and permanent plants are always more abundant along the broad river valleys of the lower country than along the narrow valleys higher up in the mountains.

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Pastures of annual plants may spring up almost anywhere in the desert - even in the otherwise barren countries of *ténéré* and *tanezrouft*, where they then constitute valuable fodder for the camels of passing caravans. Rainfall in Ahaggar is most common in the highest parts of the country, where, on the other hand, little perennial vegetation is found. In periods of drought this region is so to speak nothing but rocks and boulders, while after rain in summer it becomes covered with a green curtain of annual plants. South of Ahaggar important perennial vegetation is not found until we arrive at the outskirts of the Adrar and Ayr Mountains, where it is extremely rich compared with Ahaggar. Indeed in Southern Ayr trees and bushes may form dense forests in the valleys outside of which there is also some perennial vegetation. The Ayr Mountains belong to a special zone of vegetation termed *sahel* by French geographers (cf. Capot-Rey 1953a, p. 26 ff.). From an economic point of view the main characteristic of this zone, which includes Ayr and Adrar, is that it has a fixed wet season and consequently pastures of annual plants spring up every year over large areas. South of Ayr and Adrar the zone of *sahel* gradually changes into the Sudanese savannah.

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Tuareg country thus falls into three distinct zones of vegetation with rather different conditions for stock-breeding:—

1) *True Desert* comprising the territories of *Kel Ahaggar* and *Kel Aijer*. Rainfall is irregular, and pastures of annual plants do not spring up every year. The main livestock are goats, while sheep are bred only to a very limited extent, and the nomads have no cattle.

2) *Sahel* comprising Adrar and Ayr and part of the plains situated between these two mountain massifs. This zone has some of the characteristics of the true desert, but it has a fixed wet season in summer and consequently pastures of annual plants develop every year. Goats are very important and so are sheep; most nomads keep a few cows (zebus).

3) *Savannah* covering mainly the territories of *Kel Geres*, *Iwillemeden*, and *Kel Tademaket*. Perennial plants grow over extensive plains, and there is a regular spring of annual vegetation. The main kinds of livestock are cows and sheep. In the savannah Tuareg nomads frequently have horses as riding animals, whereas in the two former zones horses are normally bred only by sedentary people. - Camels and donkeys are bred by all Tuareg.

Vegetation

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The climatic and botanical differences between Ayr and Ahaggar can be seen directly from Tuareg division of the year into four seasons each having a duration of about three months. Ayr has a summer season and a winter season between which there are two seasons termed *akasa* (sometimes also called *el*, or *érafit*) and *rarat*. These two words as seasonal terms indicate that rain and annual vegetation in Ayr are recurrent events. For the word *akasa* literally means "green annual plants" while the word *rarat* refers to "dry annual plants". The season *rarat*, most of which is extremely dry, is followed by the winter season *tigrest* where rain does not fall, though the northern outskirts of Ayr sometimes have a little rain at this season. The transitional period between winter and summer known as *tabssit* is not considered a main season, but it is frequently mentioned by the Tuareg because certain perennial plants germinate at that time of the year. The summer season *éwilen* is extremely hot and rainless. It is the season of defoliation for acacias and various other perennial plants which change their leaves — generally in the way that they do not lose all leaves at one and the same time. Therefore, even in summer most acacias have some green leaves, though in certain places where rain has not fallen abundantly acacias may lose all their leaves in summer. In certain unfavourable regions outside of the Ayr Massif, acacias may even be without green leaves for a few years, but such trees become verdant again with heavy rainfalls. Scattered barren acacias are found mainly to the north of the Massif. The Tuareg say that acacias can survive an extremely long period of drought during which they are entirely dry. But they normally become green again when rainfalls start. The beginning of the rains is known to the Ayr Tuareg as *t'ézewek*.

In Ahaggar the Tuareg reckon with a summer season named *éwilen* and a winter season called *tagrest*. These two seasons are separated by the autumn known as *amewan* and the spring termed *tafsit*. The Ahaggar Tuareg know the words *akasa* and *rarat*, but do not employ them for seasonal terms because rain and annual pasture do not recur annually in their country. The summer season *éwilen* is extremely hot, but it is not the proper season of defoliation for acacias, which under favourable conditions are green in summer and defoliate in winter. The autumn *amewan* which follows upon the summer is characterized by less hot temperatures and gradually changes into *tagrest* (winter) when frost is extremely common during night, and snow falls in the mountains. This cold winter season is followed by the spring *tafsit* when many perennial plants germinate.

As will be seen from this description of the year in Ayr and Ahaggar these two countries differ much in regard to climate and plant development. Within each of the two areas there are climatical and botanical zones which are very different.

The Ahaggar Mountains, according to Maire, fall into three distinct zones of vegetation:— 1) A Tropical Zone up to 1700–1800 metres above sea level. 2) A Lower Mediterranean Zone between 1800 and 2300–2400 metres above sea-level. 3) An Upper Mediterranean Zone from about 2400 metres up to 2918 metres which is the extreme altitude of Ahaggar (cf. Maire 1933 & 1940; Lhote 1955, p. 41 f.). This division of the Ahaggar Mountains into zones of vegetation by a learned botanist seems to correspond largely with the division of the mountains into three distinct zones by the Tuareg. These three Tuareg zones and their characteristic perennial plants are the following:—

1) *Abada*, the lower parts of Ahaggar where perennial plants are abundant along the broad river valleys. Trees are very important the main species being various acacias (*abser*, *Acacia Raddiana* &

[text continues on p. 31]

Vegetation

Fig. 14. Division of the year into seasons among the Tuareg of Ayr and Ahaggar. Climatic and botanical characteristics are indicated. The akas season is also known to the Ayr Tuareg as *di* and *drofi*.

Spring of certain perennial plants. The fruit-pods of *samat* (*Acacia flava*) and *agar* (*Maerua crassifolia*) fall to the ground.

Very hot. Most pastures dry. Normal season of defoliation of acacias. Wells go dry. Dry annual plants form the best pastures.

Beginning of the rains. *Afagag* (*Acacia Raddiana*) and *afezu* (*Panicum turgidum*) begin to germinate.

Proper rainy season. Spring of annual plants. Temperature decreases owing to the rains. Water abundant in ponds. Dew (*rabe*) is heavy. People suffer from malaria.

Rainfall decreases. Most annual plants are drying and ponds go dry. Increase of temperature and very hot winds (*agzir*) in daytime, while nights are cool. The fruit-pods of *afagag* (*Acacia Raddiana*) fall to the ground.

Cool season begins. Frost may occur during night while snow is said never to fall. Acacias are green and form good pasture together with dry annual plants. A few annual species - notably *olmai* (*Schoenus purpurea* ssp. *Schimperi*) remain green throughout winter.

Spring of certain perennial plants. Considered neither hot nor cold.

Very hot. Pastures of all perennial and annual grasses and herbs are dry. Acacias are green and form the best pastures.

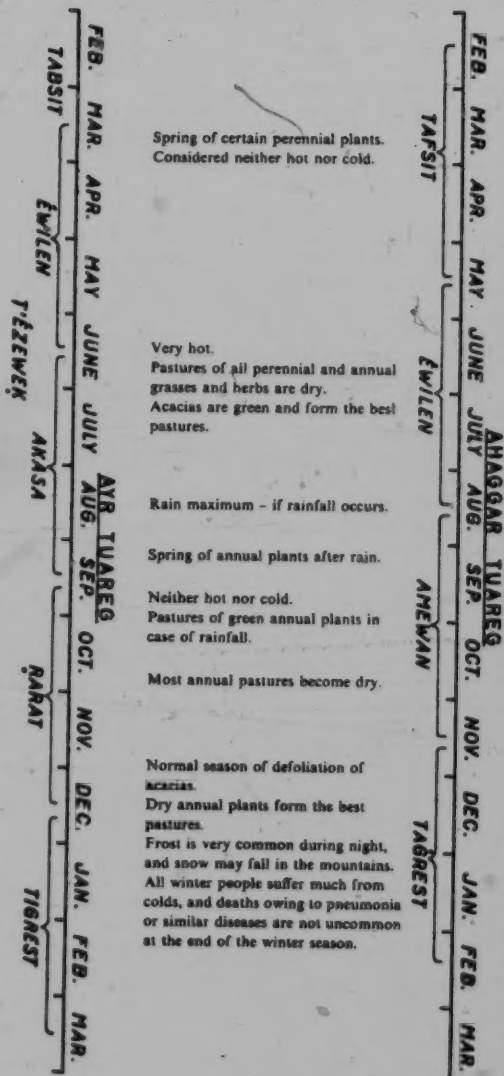
Rain maximum - if rainfall occurs.

Spring of annual plants after rain.

Neither hot nor cold. Pastures of green annual plants in case of rainfall.

Most annual pastures become dry.

Normal season of defoliation of acacias. Dry annual plants form the best pastures. Frost is very common during night, and snow may fall in the mountains. All winter people suffer much from colds, and deaths owing to pneumonia or similar diseases are not uncommon at the end of the winter season.



Vegetation . Zoology

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tamat, *Acacia seyal*) and tamarisks (*tabarekkat*, *Tamarix aphylla* & *azawa*, *Tamarix gallica* and related species). Other important perennial species are the grasses *afezu* (*Panicum turgidum*) and *tullult* (*Aristida pungens*) the latter grass being found especially around the northern massifs of Anhet and Téfedest, and in Tasilé-n-Ajjer.

2) *Tarayin*, the middle mountain zone which has the following characteristics:— Acacias are lacking or are very rare and badly developed. The big tamarisk (*tabarekkat*) is lacking while the smaller species (*azawa*, *T. gallica*) is common in certain valleys. Two trees are found which do not grow in the lower zone, namely *tahnek* (*Rhus oxyacantha*) and *aléw* (*Olea Lapperrini*). The *tullult* grass (*Aristida pungens*) is missing and the *afezu* grass (*Panicum turgidum*) is scarce.

3) *Atakor*, the highest part of Ahaggar with the following characteristics:— There are no trees with the exception of *aléw* (*Olea Lapperrini*), and there are on the whole very few perennial species while annual species are abundant in case of rainfall.

It should be noted that only the important characteristics of the three Tuareg zones are here mentioned, and I add that a few perennial plants are found within all three zones. Thus the perennial species *aramas* (*Atriplex Halimus*) occurs along the valleys in all three zones, but it is of very low stature high up in the mountains, while it forms very high and bush-like tufts in the lower parts of the country.

In Ayr there is also a change of vegetation according to altitude but a general description of this is rather complicated. The lower parts of the Ayr Massif as well as the southern plains are dominated by acacias (*afagag*, *Acacia Raddiana* & *tamat*, *A. flava*) like the lower parts of Ahaggar, and the *afezu* grass (*Panicum turgidum*) is very common almost everywhere throughout the country, while the *tullult* grass is found only in sandy regions at the eastern slopes of the Massif. Species of tamarisks are extremely rare, and this is true of certain other species which are common in Ahaggar. The trees *tahnek* (*Rhus oxyacantha*) and *aléw* (*Olea Lapperrini*) grow only in isolated mountainous parts of Ayr. The extensive plains west of the Ayr Massif around Ingal are dominated by acacias and the *afezu* grass, but these perennial plants become less and less common towards the north, so that the regions around I-n-abanjerit have very little persistent vegetation but a rich vegetation of annual plants. For further information on the botany of Ayr I refer to the study of Miré & Gillet who describe all known species and indicate their division into particular vegetational zones (Miré & Gillet 1956). I conclude this outline of Tuareg botany with the statement that Ahaggar and Ayr have many important species in common. But there are northern species which do not thrive in Ayr while some southern species are unknown in Ahaggar, e.g., the dum palm *tagayt* (*Hyphaena thebaica*) which plays a great role with the Ayr Tuareg.

Climatically as well as botanically the Ahaggar Mountains are situated on the frontier of two distinct zones, namely the Mediterranean and the Tropical zones, while Ayr is predominantly tropical. This seems true also zoologically, as the Ayr fauna contains a great many species of birds and mammals characteristic of tropical Africa. The bird life of Ayr seems very akin to that of the Sudanese savannah, and, for instance, guinea fowl is extremely common even in valleys of the northern-most parts of the Massif. As example of tropical mammal life in Ayr we may here mention that the wart-hog lives in Central Ayr, and that oryx antelope and giraffe are found in the plains immediately south and west of the Massif. I do not wish here to compare in detail the natural history of Ayr and Ahaggar, but

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Fig. 15. Goats of the long-haired northern breed. The animals are emaciated and feed on acacias which are almost leafless owing to severe drought. Ahaggar 1953, the *Taynak* tribe.

points of which turn slightly inward and forward. He-goats of both breeds generally have strong oblique horns of screw-form. Both in Ahaggar, Tasile-n-Ajjer, and in Ayr there are in most flocks one or two goats which are born hornless.

*233 436 Although goats are bred intensively by the Tuareg they take little interest in these animals. Before the arrival of the French, goats formed the most important currency and, though money has now come into general use, they are still used in payment as for example, to the blacksmiths for the making of bracelets, weapons, and various implements. In Ahaggar goats are also used for certain payments to the *Amemukul* from his vassals, such payments being known as *chérdé*. This word, which is also common in Ayr, means literally "a big flock of goats" (or sheep), but it may equally well be translated as "fortune" or "money".

*233 192 Owing to the practical importance of goat-breeding there are a great many terms to designate the animals according to sex, age, and various characteristics. In Ahaggar there are the following age-

terms:—

Age	Female	Male
New-born kid		<i>amarwa</i>
Kid from its birth to the appearance of its horns	<i>shreydel</i>	<i>dreyd</i>
Weaned kid with horns, and of bigger growth than above	<i>tazzi</i>	<i>uzzi</i>
Weaned kid	<i>tabunkalut</i>	<i>abunkalu</i>
Animal not yet fully grown	<i>tabulek</i>	<i>bulék</i>
Animal not yet fully grown	<i>tadawalt</i>	<i>adawal</i>
Fully grown animal	<i>siyee</i> (pl. <i>ullif</i>)	<i>siyee</i>
Fully grown animal	<i>siyee</i>	
(The common term for a fully grown goat in Ayr; it is used occasionally also in Ahaggar).		

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Fig. 17. A slave-boy takes kids out of the stone-enclosure (*agrar*) to let them suck. Ahaggar, the *Agh-en-ichid* tribe.

*233 yielding decreases after mating. It is said that some goats yield milk in the whole period of gestation, while others have no milk whatever during most of that period.

The advantage of free mating is further reduced because goats, if mated too often, become emaciated, and for the northern breed their coat of long hair, so important to craft (cf. p. 263 ff.), will not develop fully. Added to this, kids born in the hot summer season will often be of inferior quality, as they suffer from heat and the lack of fresh annual plants during their period of growth. Again, the mother animals may yield so little milk in summer that it is not even sufficient for the nourishment of their kids.

The free mating of goats is not generally desirable, and therefore most Tuareg practise a system of regulation which varies with the qualities of pastures. If reproduction of the flock is badly needed it may happen that all goats are mated twice a year, but it is considered an ideal in good years to divide the animals into two parts which bring forth kids and yield milk at different seasons.

*233 In Ayr when the flock is divided into two parts to bring forth kids and yield milk at different seasons, 132 one part brings forth kids during the season of *akasa* when the pastures of annual plants are very [137] rich, the other at the end of the winter season during the period known as *tabis* at which time certain other plants germinate, and fruit-pods of the winged acacia (*Acacia Raddiana*), which are extremely good for fodder, fall to the ground. If kids are wanted for a flock during the season of *akasa*, which is the best season for the birth of kids, the goats are mated in winter. When all the she-goats have been covered, the penis of the he-goat is bound around the foreskin by means of a cord - a method which is known to the Ayr Tuareg as *akkaw*, to the Northern Tuareg as *urum* (cf. Fig. 25). If kids are wanted for a flock in spring at the season of *tabis*, mating stops with the binding of he-goats at the

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Fig. 23. Slave boy milking goats - a task which is normally performed by women. The milk-bowl is held in the left hand, and the milking is done with the right hand, while the goat's left hind leg is held fast beneath the right upper arm. Ahaggar, the *Agh-en-ichil* tribe.

GOAT MILKING

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Fig. 24. Tuareg milkmaid milking a goat as described Fig. 23. Ahaggar, the *Agh-en-ichil* tribe.

Cattle Breeds. Use of Cattle in Ahaggar

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p. 93 ff.), and this seems to be true partly also of the so-called Watusi-cattle and related breeds, which have been mixed with zebu-cattle and therefore frequently have well developed humps (cf. Adametz 1920, p. 10 ff.; Faulkner & Epstein 1957, p. 148 ff.; Johs, McLaughlin & Phillips 1957, p. 146, 178, 259).

Adametz believes that zebus were introduced into Africa from Northern India about 2000 B.C. (Adametz 1920, p. 10 ff.). Nowadays Zebus no doubt form the most important types of cattle in Africa, and Tuareg cattle are of the zebu type. The West African zebus fall into a number of sub-breeds described in detail by Doutressoulle. The zebu type found in Ayr and adjacent regions and also introduced into Northern Tuareg country is known as the *Azawar* breed (Doutressoulle 1947, p. 102 ff.). In Southern Ayr, which nowadays has a fairly large population of pastoral Fulani, a particular type of zebu is also very common. This zebu is characterized by very high stature and extremely long horns often resembling the form of a lyre (Fig. 27). This breed is named Borodji, Bororo or M'Bororo. The Fulani zebu is esteemed by certain Ayr Tuareg because of its fatter milk, but it is claimed that its meat is not so delicious as that of their own cattle.

Pastoral Tuareg of Ahaggar and Tasilé-n-Ajjer do not breed cattle (zebus), which do not thrive in their barren countries where pastures of annual plants do not regenerate annually. An attempt to breed zebus among the pastoral Ahaggar Tuareg some years ago failed, and zebus are nowadays found only among settled agriculturists who use these animals as draught-animals at irrigation wells (p. 189; Fig. 132 a-b). A few agriculturists also have cows to raise calves, and to utilize their milk. It is comparatively easy for settled agriculturists of Ahaggar to keep cattle. In dry years, and when pasture is scarce and dry in the hot season, cattle can be fed on vegetables and the straw of certain plants grown in the garden. It can also be mentioned that many agriculturists live in the very broad river valleys of lower Ahaggar where water is not very deep under the sand, and at some agricultural settlements there are even permanent springs. In such places (e.g., the settlements of Abalessa and Amsel) there are even in dry years fresh grazing of a few permanent plants suited to cattle, notably the four following species:— *tahlé* (*Typha elephantina*), *tésengelt* (*Saccharum Ravenae*), *ilegga* (sing. *aleggi*) (*Scirpus Holoschoenus*), and *taysest* (*Eragrostis bipinnata*). The regeneration of these plants is not dependent upon annual rainfall, for the soil is always sufficiently humid for their annual regeneration. Therefore it is very common in Ahaggar (e.g., at Abalessa and at Amsel) to burn down the old dry plants late in winter so that new fresh plants can germinate in spring. This method of renewing pasture by the burning down of old dry plants is not generally possible in desert countries. In Ahaggar it is practised only for the four above mentioned species within very limited humid areas, and the method is said to be entirely unknown in Ayr.

The Ahaggar agriculturists who possess oxen very frequently use these animals for riding, sitting on the hind part of the animals which are kept under control by means of a rein (*tazerkit*) placed through their nostrils, or by means of a halter. No saddle is used apart from a casual piece of cotton, or a blanket (Fig. 28). In Tasilé-n-Ajjer, it is said, the settled farmers have no cows but only bulls and oxen to be used at irrigation wells, and these animals are not used for riding as in Ahaggar.

The zebus found in the settlements of northern agriculturists are all introduced from the south where conditions for ox-breeding are much more favourable. Many, and perhaps most, northern zebus have come from Ayr from which region they are still introduced to Ahaggar and Tasilé-n-Ajjer.



Fig. 29. Milking a cow. The calf is attached to a tree by means of a cord (*témetrek*) around its neck, the mother cow being attached to the same tree with a cord (*ayan*) around its horns.
Ayr, Tuareg of the *Kel Ferwan* group.

* 233 Zebus are able to cross the barren desert country of the Sahara in winter, and even with so hot a temperature, as that prevailing at the end of April, I have met Ayr Tuareg of the *Kel Tédalé* tribe leading zebus from Northern Ayr to Tamanjasset in Ahaggar.

The Ayr Tuareg seem to admit that they have always had zebus, but they say that in the past they had very few cattle. Nowadays there are zebus in so to speak all camps and villages of the Massif and in the plains to the west of it. At the village of Iferwan sedentary farmers possess three to four animals per household, and figures are much bigger for households of true pastoralists. It is quite normal for a nomadic household to possess a dozen zebus, and this is true even of pastoral Tuareg roaming in the northern outskirts of Ayr where precipitation is lower than in the south.

In fact zebu-breeding is a very profitable industry to the nomads, the more so as very little work is connected with it. The animals leave the camp early in the morning to return again entirely by themselves in the evening before darkness. They are never accompanied by herdsman as there are no beasts of prey strong enough to attack them nowadays. I have met Tuareg who were evidently very fond of

[171] their zebus, but they never showed the same interest towards their cattle as do the Fulani, who always accompany their herds. During grazing Tuareg zebus normally roam freely, but certain animals which are difficult to get hold of are provided with a cord (*ayan*) around their horns to which cord is attached

[366] a long piece of wood trailing on the ground. When oxen are driven to the market place (at Agadez or Inga) for selling,

Camel's Meat . Method of Slaughtering

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to the killing of a camel for wedding guests. Otherwise the Northern Tuareg like those of Ayr only 262 kill sick animals for food.

There are certain practical reasons why camels should not normally be killed for food among the Tuareg. Even very old camels fetch high prices at markets of the northern oases (Tamanrasset, Tidikelt), [435] and the Tuareg prefer to get the money instead of eating their old camels. This is easily understood when we consider the fact that one camel contains so much meat that it cannot be eaten quickly by [252] the members of a household, and camel's meat is rather tough and must be boiled for several hours to be eatable. Besides, camel's meat is not very well suited to be preserved for eating at a later date [257] on journeys. However, it can be dried and when sick camels are killed part of their meat is often prepared in this way.

A camel is killed in a very particular way quite different from the method of slaughtering other domestic animals and game. It is killed as follows:— Cords are attached very firmly around the legs of the animal which is kept to the ground by several men who sit on its back and draw its head backwards. The artery is thereupon opened at the lower part of the neck close to the chest, and the knife is thrust into the animal at this place, but not so deeply as to touch the heart or the entrails. This stab is quite sufficient to kill the camel, but some people also cut its throat close to the head in the way other domestic animals are killed. Very peculiar also is the way camels are skinned. While other animals are skinned in such a way that the hide can be removed as entire as possible (cf. Fig. 173), the carcass of a camel is cut up before skinning. The four legs with their thighs are cut loose close to the carcass, which is thereupon cut into several parts by means of a large chopping-knife or an axe (cf. Fig. 44). The hide is thus removed from the carcass after partitioning; but it is difficult to remove the hide as it sticks firmly to the meat, and only part of it is taken off for later use. In Ayr the Tuareg do not 000



Fig. 44. Skinning and partitioning of a young camel. Ayr, *Ifraden*.

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Camels . Use of Hide and Wool

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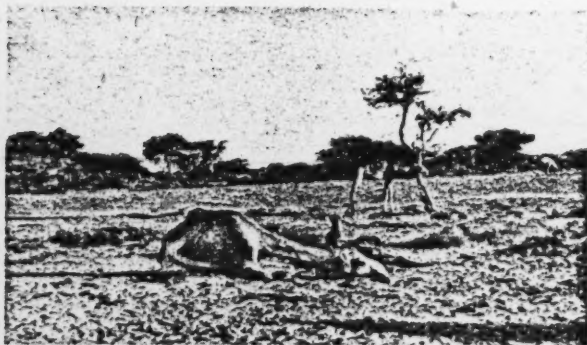


Fig. 46. A resting she-camel with the colour name *tawinak*. The colour term of the young she-camel standing in the back-ground is *ténili*. Ayr, the *Imezzuweg* tribe.

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In Ayr the Tuareg do not use camel's hide in their crafts, but give it to the blacksmiths who use it for lashing, or to people who manufacture beds from ribs of palm leaves (cf. Fig. 257). The Northern Tuareg use camel-skin for the manufacture of a few household implements and also use it for lashing (cf. p. 84, 110, 222, 270 f. & Figs. 70, 86, 132a-b, 161a-d, 162, 213). But even in Ahaggar and Tasilé-n-Ajjer the skin of camels is little used compared with the skin of goats, sheep, and barbary sheep.

When employed in craft, camel's hide is normally used raw and unprepared after soaking in water, but the Ahaggar Tuareg say that for certain purposes the hide is treated with salt. In literature there are many statements about the tanning of camel's hide. Thus it is stated by Cauvet that the hide is tanned with plant material in Algeria, and Cauvet also quotes Duveyrier's statement that the Northern Tuareg tan camel's hide to use it for tents and various other implements (Cauvet 1925-26, I, p. 714 ff.). I very much doubt the correctness of this, as all Tuareg asked about it have stated that the hide of camels is not fitted for proper tanning. Camel's hide is therefore of very limited use to the Tuareg, and the same is the case with camel's hair or wool. Tuareg camels in Ayr have very little wool, and among the Northern Tuareg most animals have less wool than Arab camels of the Northern Sahara. The Northern Tuareg pluck a little wool with the hands or cut it off with a knife. It is spun into cords to be used for certain minor objects, notably for the manufacture of the plaited pouch (*abegu*) to prevent the suckling of calves (p. 62, Fig. 41) and for the particular cord (*asarun*) tied around the foreleg of camels to keep them in a reclining position (p. 72, Fig. 45a). Mixed with goat's hair the wool is also used for a kind of primitive weaving (p. 265 ff., Figs. 209a-b).

Camels are very important to the Tuareg as pack-animals for the caravan expeditions which will be mentioned in a later chapter when other means of subsistence have been described.

In the past camels were also extremely valuable as riding animals on raiding expeditions which

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*⁴⁹² should be remembered that she-camels possess less endurance than bull-camels and geldings on very long journeys.

*²³³ She-camels and the few bull-camels which are reserved for breeding graze free and unhobbled; pack and riding animals are hobbled with a short rope between their forelegs during grazing. Both in Ayr and among the Northern Tuareg this hobble-rope is known as *téffart* (Fig. 45b-c). In Ayr it is generally rather short because pasture is rich in the valleys where camels are also difficult to find because of the dense vegetation and because the animals frequently leave no trace. In the two groups of Northern Tuareg, vegetation is on the whole more scattered and camels have to wander more freely to find suitable fodder. The Northern Tuareg therefore in general use a somewhat longer hobble-rope, and they find their animals again without much difficulty because of the open country and because the camels leave foot-prints which differ from one animal to the other. When the camels are out of sight they are easily traced by the Tuareg who know their foot-prints. The Ayr Tuareg make their hobble-ropes from dum palm leaves twisted together, while Northern Tuareg use bast of the date palm trees, which latter material is considered the better for hobble-ropes. If hobbled camels are left to themselves for longer periods the Northern Tuareg also use ropes made of goat's hair or ox hide as such ropes do not so easily break (cf. Fig. 45c, e).

[17] Arab pastoralists of the Northern Sahara do not always let their camels graze during night but frequently keep them lying in front of the tent after darkness; the animals are then tied around one of their forelegs by means of a short rope provided with a small stick. The same device (*asafun*) is also known to the Northern Tuareg (p. 67, Fig. 45a), but it is unknown to the Ayr Tuareg who use for this purpose a short rope (*afenful*) without a stick and made from twisted dum palm leaves. The Tuareg may keep camels in the camp during night and then tie one of their forelegs with the ropes mentioned. This is done with she-camels which rest close to their calves at night time, and in Ayr also with most camels during the short period of the year (*akasa* and the beginning of *rarat*) when dew falls heavily upon annual pasture, for camels may contract stomach diseases from eating wet annual plants. In Ahaggar I have noted that camels are attached in the way mentioned and kept in camp during the night in order that they might not eat noxious plants growing close to the tents (cf. p. 124). However, camels normally graze during the night and do not sleep much. On the very long trading expeditions they eat almost exclusively through a few hours of the night. When a camel sleeps it stretches out its long neck in a slightly curved position and its head rests upon the chin (cf. Fig. 46). It sleeps very lightly; and the Ahaggar Tuareg say that a boy who is able to creep under the neck of a sleeping camel and not awake it will never lose his way in the desert.

*⁴⁹² Pack-camels of a Tuareg caravan walk one behind the other in a long line. Every pack-camel is provided with a rope noosed around its lower jaw, the loop being prevented from loosening by the insertion of a small stick (Fig. 47). This rope is known as *akala* to the Ahaggar Tuareg, who use ropes made from twisted pieces of date palm bast, while the Ayr Tuareg make similar ropes from dum palm leaves. The loose end of the *akala* rope is attached to the pack-camel walking in front, fastened either to its luggage or, more frequently, to its neck around which camels of a caravan carry their hobble ropes.

*²³³
*⁴⁹² True halters made from goat's hair or from palm material are used mainly for young untrained

Interest in Complex

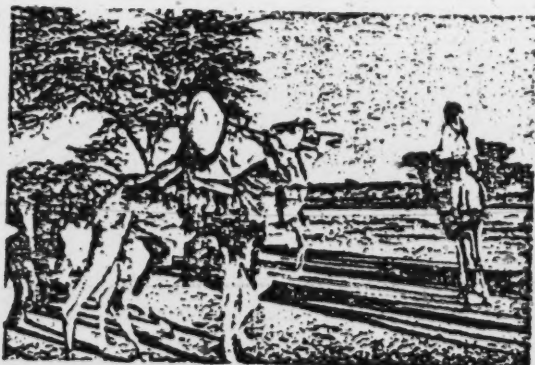


Fig. 82a. Tuareg performing the ceremonial camel-ride on the first wedding day. The women stand in the shade of the *ajefef* acacia and sing and drum while the men ride around them two by two. Southern Ayr. *Browder*.

Boys and girls may play together, but there is a tendency for them to separate in their games. Boy-games centre round camels, while the games of girls centre round the family life of the tent and certain domestic tasks. But though camels are never tended by women, girls also make camel figures from cotton stuffed with hay, though they do not make figures to represent goats and donkeys which among men are connected with women and tended by them. The emphasis on camels in girl's games is due to the fact that camels have important functions in social life as described briefly below.

Teens initiation consists in the adoption of the veil by young men, and a similar piece of cotton used as a head-cloth by young women. The veil is adopted by men when 16-18 years old, the head-cloth by women somewhat earlier shortly after the first menstruation, or at marriage. At initiation the young man is presented with a sword, and if he does not already possess a riding camel with a saddle it will be given him on this occasion by his father, perhaps by his mother's brother. The young man is now a warrior and a camel man, and he will take part in nightly gatherings of young people of both sexes to sing and make music. These nightly gatherings are very often followed by love-making, and the riding camel and the ability of the young man as a rider play a great part for his success in love. The beauty of the riding camel, its saddle gear, and the way it is ridden are all to some extent considered qualities of the rider. Thus when women at nightly gatherings praise young men in their songs they will also praise the riding camels. And when a girl likes a young man she will present him with coloured skin bags, reins, embroidered saddle clothes, and similar objects to be used as ornaments for his riding camel.

In a ceremonial ride termed *shaton* (*shagan* in Ayr), which is performed at weddings and certain other feasts, the young men have a particular opportunity to display the beauty of their camels and their own ability as riders. The ride takes place not far from the wedding tent on a level sandy place where the women gather to sing and drum, while the men dressed in their finest clothes ride their ornamented camels to and fro past the women, who praise the beautiful camels and the skilled riders by their songs, their music, and by shrill cheers. In this ceremonial ride the emphasis is not so much on such

Interest in Camels

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Fig. 82b. Cf. text Fig. 82a.

qualities as strength and speed, but rather on elegance and sublimity. The riders sit straight in the saddles without watching the crowd of women, and the camels are ridden at a gentle trot (generally that known as *senai-senai*; cf. p. 99) with their heads drawn back. In this way the men may also ride their animals round the women in a circle as I have seen in Ayr (cf. Fig. 82).

Camels have important social functions among the Tuareg who take an interest in these animals far beyond their practical value. It may perhaps be useful to compare Tuareg interest in camels with Nuer interest in cattle so brilliantly described by Evans-Pritchard. Nuer caress their animals, and there is a tendency for human beings and cattle to form, so to speak, a single community (Evans-Pritchard 1940, p. 16-50). This is not exactly true of Tuareg and camels. The Tuareg do not pat their camels which will not respond to caressing, and they do not live in very close contact with their animals, most of which frequently graze far away from the camp under the supervision of one or two herds-men. But the Tuareg nevertheless have much the same feeling towards camels as Nuer have towards their cattle. They are very fond of their animals. They may abstain from camel's flesh because they are fond of camels and would feel very sick at heart when eating them. But though the Tuareg are fond of camels as such, they are delighted particularly at the sight of a very fine camel (*akemhur*; Ahaggar) and may even speak disparagingly of a badly built animal (*amugey*; Ahaggar). Fine camels add to the prestige of a man, while too many animals of poor build may even harm his reputation. When girls and young women praise camel-riders in their songs they praise those mounted on fine and richly-decorated animals. When camels are mentioned in poetry this may also be done as praise to their owners, as in a poem composed in honour of noble Tuareg of the *Uraen* (*Kel Ajjer*) of whom it is said that "their pack-camels have feet as large as a drum, and the loads they carry are like the crests of mountains" (Hanoteau 1896, p. 218). Such reference to pack-camels, however, seems to be rare in Tuareg poetry, while riding camels are frequently mentioned in connection with warfare and love. Riding camels have much the same esteemed position as had horses in Medieval Europe. Tuareg interest in camels is particularly focused on riding camels and there is a tendency towards identification

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the caravan and feed the animals with annual grasses, and a camel-rider, when he meets plants considered excellent for fodder, will stop for a while to let his riding camel eat them.

Saliferous plants are highly important to all types of livestock, and camels and sheep in particular need much salt nourishment. In Ahaggar there are certain plants of this kind almost everywhere, and the following species serve as fodder:— *aramas* (*Atriplex Halimus*), *issin* (*Salsola foetida*), *tabarekkai* (*Tamarix aphylla*), and *azawa* (*Tamarix gallica* and related species). *Aramas* in particular is very important. It is found almost everywhere within the Ahaggar Massif and at all altitudes. Benhazera states that *aramas* forms the most important fodder plant of Ahaggar (Benhazera 1908, p. 65), but this is not quite correct. It is most important because of its salt content as domestic animals do not thrive without salt, but the saliferous plants mentioned are very little nourishing for most domestic animals, and if the animals constantly eat such plants they become very thin. The most nourishing fodder plants of Ahaggar are tender annual species which spring up after abundant rainfalls. These plants are collectively known to the Ahaggar Tuareg as *akasa*; they comprise many different species and those considered most excellent for fodder are: *tageruft* (*Tribulus terrester*), *adreytal* (*Astragalus* sp.), *taynast* (*Echium humile*), *azren* (*Monsonia heliotropioides* & *M. nivea*), *tamaghé* (*Moricandia arvensis*), and *tunesimint* (*Rumex vesicarius* & *R. roseus*). To these annual fodder plants can be added another important annual species, namely *alwat* (*Schouwia purpurea* ssp. *Schimperi*) which grows in the lower parts of Northern Tuareg countries. It is apparently not so common and important to the Northern Tuareg who live in and around the mountainous massifs, though it is a common and very valuable fodder for domestic animals of the Ahaggar Tuareg who live towards the south in the plains of Tamesna. It is one of the best fodder plants for camels and is also fairly good for sheep, while less valuable for other types of livestock. Annual plants may germinate over a large part of the year in Ahaggar, but as rainfall is most common late in summer (June, July, August) the best annual pasture will spring up at this period, and under very favourable conditions the plants may keep fresh and green for up to four months. When annual plants wither they are known to the Ahaggar Tuareg as *farat* (*farat n akasa*). Such dry annual plants have lost much of their fodder value, but they are important for fodder even at this stage. The perennial species which are most important for fodder have their optimal value at particular stages of their development at particular seasons. Important are the perennial grasses known to the Tuareg as *tullult* (*Aristida pungens*) and *afezu* (*Panicum turgidum*). The *tullult* grass is extremely common in the Northern Sahara, and it forms perhaps the basic fodder plant among the Tuareg of Tassile-n-Ajjer. It is also common in Ahnet and in the other mountain massifs surrounding Ahaggar to the north, but it is not found in the mountain massif proper of Ahaggar where most Tuareg live. The grass grows at Abalessa where cattle, goats, and sheep of the sedentary farmers feed upon it. The *tullult* grass is valuable when green in winter, and hay of this grass is used for camel fodder on caravan expeditions to Tidikelt. The Tuareg cut it with a sickle and take it with them on the journey to the northern oases, because there is normally little vegetation on the road and no pasture around the oases where the Tuareg remain to trade for several days. The *afezu* grass is extremely common in the lower parts of Ahaggar and is found in practically all river valleys. It is valuable for fodder when green after rain, but it is of little value when withered. There are other perennial herbs and grasses which are eaten by domestic animals, but herbs and grasses are

Fodder Plants in Ahaggar

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not the most important perennial fodder plants for goats and camels as the very best fodder plants of this kind are acacia trees, notably the species of *tamat* (*Acacia seyal*) and *absey* (*Acacia Raddiana*) 233* 824 which are, perhaps, the most common trees in the lower parts of the Ahaggar Massif. In Ahaggar the acacias defoliate in winter, and they are then not very nourishing fodder, though they do not apparently lose all leaves at one and the same time. Very nourishing are the fruits or pods of the two acacia species mentioned. They are eaten by all domestic animals.

The most valuable fodder plants in Ahaggar consist of annual plants and the acacias, with the addition of saliferous plants. The tender annual plants are those considered most nourishing for animals. The annual plants may spring up everywhere at all altitudes, but the three vegetational zones of Ahaggar do not possess exactly the same species, and there are still greater distinctions between the perennial species found within these zones, which as fodder areas have the following main characteristics:— (137)

(1) Abada

Annual fodder-plants	<i>tageruft</i> (<i>Tribulus terrester</i>) <i>taɣnaɣ</i> (<i>Echium humile</i>) <i>adreytal</i> (<i>Astragalus</i> sp.)
Perennial fodder-plants	<i>tullult</i> (<i>Aristida pungens</i>) <i>afezu</i> (<i>Panicum turgidum</i>) <i>absey</i> (<i>Acacia Raddiana</i>) <i>tamat</i> (<i>Acacia seyal</i>)
Saliferous plants	<i>aramas</i> (<i>Atriplex Halimus</i>) <i>issin</i> (<i>Salsola foetida</i>) <i>tabarekkat</i> (<i>Tamarix aphylla</i>) <i>azawa</i> (<i>Tamarix gallica</i> and related species)

(2) Turayin

Annual fodder-plants	<i>tageruft</i> (<i>Tribulus terrester</i>) <i>taɣnaɣ</i> (<i>Echium humile</i>) <i>tamaghe</i> (<i>Moricandia arvensis</i>) <i>azren</i> (<i>Monsonia heliotropioides</i> & <i>M. nivea</i>)
Perennial fodder-plants	<i>afezu</i> (<i>Panicum turgidum</i>) Scarce <i>absey</i> (<i>Acacia Raddiana</i>) - <i>tamat</i> (<i>Acacia seyal</i>) -
Saliferous plants	<i>aramas</i> (<i>Atriplex Halimus</i>) <i>azawa</i> (<i>Tamarix gallica</i> and related species)

(3) Atakor

Annual fodder-plants	<i>tageruft</i> (<i>Tribulus terrester</i>) <i>tamaghe</i> (<i>Moricandia arvensis</i>) <i>tanenimi</i> (<i>Rumex vesicarius</i> & <i>R. roseus</i>)
Perennial fodder-plants	They are scarce and of little value
Saliferous plants	<i>aramas</i> (<i>Atriplex Halimus</i>)

- * 233 Each of the three vegetational zones of Ahaggar has its advantages and disadvantages. If we consider
 824 a good year when rain has fallen abundantly with a resultant regeneration of all fodder plants, the
 137 *Atakor* zone has very excellent pasture. For the plains and the stony mountain slopes are then entirely
 132 covered with annual plants which by the Tuareg are considered the very best fodder. The Tuareg also
 133 claim that the upper mountain zone is preferable because of its cooler climate, which has a beneficial
 influence on the lactation of domestic animals. The disadvantage of the *Atakor* zone is the lack of
 acacias to which can be added the scarcity of fuel. The *Tarayin* zone possess characteristics of the *Atakor*
 zone and of the *Abada* zone. The *Abada* country is botanically very different from *Atakor*. It has
 annual pastures of great value when abundant rainfall has been experienced and it also has valuable
 pastures of perennial plants. With heavy rain the *Abada* country is excellent for stock-breeding, and
 fuel can be found everywhere. But the *Abada* country is hotter than are the zones of *Tarayin* and
Atakor.

If rain falls abundantly all over Ahaggar there is good pasture in all three zones. But rainfall is more
 frequent and heavier at high altitudes than in the *Abada* zone, so that *Atakor* normally has by far
 the best pasture of annual plants which spring up late in summer or in autumn. The *Abada* zone on
 the other hand has the very best pasture of perennial plants, notably acacias that grow around the
 lower parts of the valleys which are always flooded when it rains in the high mountains.

- 221 The fluctuations of plant development determine the nomadic migrations of the Ahaggar Tuareg.
 * 233 A few tribes have their normal grazing grounds in *Atakor* (e.g., the *Dag Rali* and the *Kel Tazulet*).
 824 They camp in this zone at most seasons to let their goats and sheep feed on fresh and dry annual pasture.
 132 In dry years and during the hot summer season they may move to the *Tarayin* zone where there are
 133 perennial fodder plants, but they rarely camp in the *Abada* country. Many tribes have their normal
 grazing grounds in the *Abada* zone (e.g., the *Agh-en-tehlé*, the *Ayi Lowayen*, the *Iheyawen Hada*,
 and the *Kel Relu*), but move to the *Atakor* when annual pasture is good in this region. They live in
 132 *Atakor* with tents and flocks when annual plants are green, while the rest of the year they camp in
 the *Abada* country to let their animals feed on acacias and other perennial species. Finally there are
 two tribes (*Téghé-n-Efis* and *Ikkan-en-tawsit*), the members of which camp in the *Abada* country all
 the year round even when rich annual pasture is found in *Atakor*. However, members of these tribes
 may send their camel herds to the *Atakor* zone, accompanied by herdsmen, while tents and flocks
 remain in the lower country.

- 221 With the exception of a few noble households which keep up their old tradition to subsist largely
 * 233 on camel's milk, the Ahaggar Tuareg do not keep their she-camels in Ahaggar unless there are excellent
 132 pastures of annual plants in this area. They take their camels to pastures far away from Ahaggar,
 132 notably to the Tamesna region where they have their animals guarded by herdsmen who are frequently
 132 slaves. In very dry years there are very few camels in Ahaggar - just the animals needed for riding
 and transportation. It is in fact very easy to take camels to distant pastures, and it is most necessary
 to give these animals the utmost care as they are most valuable and their breeding is a very slow process.
 * 233 (cf. p. 56). Goats do not need such excellent fodder as do camels. They can eat almost everything, but
 132 in dry years goats may also suffer severely from lack of suitable fodder. This was the case in the year
 132 1954/55 when I stayed in Ahnet and in Ahaggar. In the small camps of three to four tents each it was

Nomadic Migrations in Ahaggar

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- *²³³ normal every day to loose one or two goats which died of hunger. The goats were too thin to be mated, and even in winter there was no milk, or so little, that it was all consumed by small children. In spite of these very severe conditions most Ahaggar Tuareg stayed in Ahaggar with their flocks which subsisted on dry perennial plants and annual plants that were two years old. Conditions were extremely bad in the region of Ahnet, and about half of the Ahnet Tuareg left their country to go southwards with their camps and goats, to the regions of Ti-n-zawaten. In severe drought periods some Tuareg may move their camps far outside of Ahaggar, but even then most of them will remain in their native country for extensive goat migrations are difficult and cannot be realized without a loss of the meagre animals. Most Tuareg therefore prefer to remain and to avoid the strenuous journey connected with these migrations. They may loose many animals during a drought, but they know that sooner or later rainfall will occur so that pastures will regenerate quickly to let the animals grow fat to yield milk and to be mated. The increment of goats is extremely quick in comparison with that of camels.
- *²³³ Stock-breeding conditions are on the whole not very favourable in Ahaggar, but pastoral Tuareg of this region have developed an economic system which secures their existence even in very bad years of extreme drought.
- ¹³⁷ In the introductory description of Tuareg environment it was stated that the Ayr Massif and the surrounding plains have far better possibilities of stock-breeding than Northern Tuareg countries. The broad river valleys of Ayr are very rich in persistent plants which also grow on slopes and in depressions outside the valleys, and the spring of annual pastures is an annually recurrent event. One informant told me that there had not been any drought in the Agadez region throughout the many years the French had reigned over Ayr. At an unknown date in the past, it is said, a very severe drought persisted in the country for a period of seven years, and the Tuareg who had many goats and sheep fed these animals on charcoal. Since then rain has fallen every year and though more

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Fig. 96. Tuareg feeding his riding camel with boiled tea leaves which are considered excellent fodder for camels. Ahaggar, the Dag Rali tribe.

*221 tagayt, while the *Iwllenmeden Kel Dennek* at this period will camp around Ingal. Many Southern
 *233 Tuareg leave the savannah country to avoid its heavy rainfalls and stock-diseases to let their animals
 824 benefit from the salty water and plants in the *Azaway* country.

133 In the country west of the Ayr Massif, the Tamesna Plains, there is in addition to the Ayr Tuareg
 162 a numerous population of Ahaggar Tuareg who live constantly in these regions. These plains are
 ●137 botanically different from the mountains. Perennial vegetation is scarce though there are some *tamat-*
 *233 acacias (*Acacia flava*), but there is a very rich vegetation of annual plants of great importance to
 824 domestic animals. Among these plants can be mentioned *alwat* (*Schouwia purpurea* ssp. *Schimperl*),
 which is very valuable for camels and also good for sheep, *adreytal* (*Astragalus Vogelii*), and *tagellet*
 (*Colocynthis vulgaris*). The two latter plants are valuable as fodder for all domestic animals. It is
 noteworthy that these three species of annual plants last longer than other annual species. They do not
 wither at the beginning of the *farat*-season, but remain fresh and green all through the winter until
 about *tabrit*.

It is evident that Tuareg knowledge of botany is extremely comprehensive, and that they use this
 knowledge to make stock-breeding as rational as possible. They may perhaps not be so rational in
 protecting pastures, for they cut acacias' boughs to feed the kids resting in the camps, and it is most
 possible that they also overgraze certain pastures. However, the grazing grounds are very vast in
 comparison with the number of pastoralists, and I believe that overgrazing and arboreal devastation
 take place mainly around villages and towns where the flocks of sedentary people graze continuously
 in the same area. In Ahaggar the valuable fodder plants and plants which are important for col-
 lecting are often protected for two or three months in order that they may become fully developed
 (cf. p. 150, 179).

*233 The Tuareg take great care that their animals do not lack water. It is true that camels and also
 donkeys can do without water for many days even in summer, but at this season camels should prefer-
 ably be watered every two or three days, and goats are always watered every two days when the weather
 is hot. In winter the animals are not watered so often, and this is true particularly if the animals feed
 on fresh annual plants. Camels can do without water even for weeks and months under such favourable

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Fig. 97. The leather bucket known as *afo* to the Northern Tuareg. The leather is tied to an iron ring made by blacksmiths. Collected in Ahaggar by Olufsen. Dimension of the iron ring: 0.275 m in diameter. (N.M. G. 1.51).

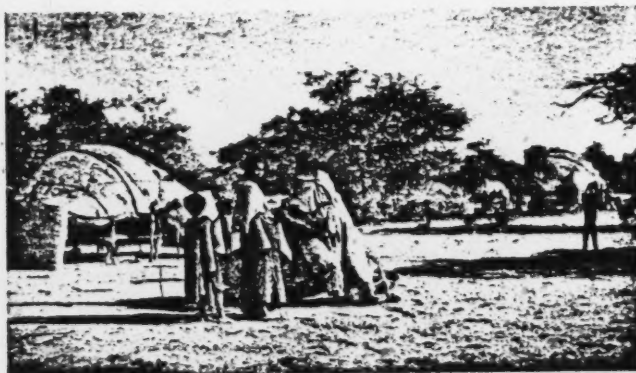


Fig. 109. A family camp of four mat-covered barrel-vaulted tents. Ayr, the *Igendrynen* tribe.

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233 donkeys by certain Ayr Tuareg are most interesting. Though such marks are used by many tribes there does not seem to be a great variety of them, and I have noted only the following marks:—

[545] (1) *tallayt*, that is the tip of right ear cut off while a slit is cut into the left ear. This mark is said to be used by all vassals of the *Kel Ferwan* group, but the members of the two tribes *Kel Akerra* and *Imezzureg*, who claim to be noble by origin, have an additional brand burned into the left hind thigh close to the animal's anus. This brand is called *ekomed*.

[545] (2) two slits in the animal's left ear. Though different from the mark just mentioned it is said also to be called *tallayt*. It is used by the noble *Kel Ferwan* Tuareg (the *Irawatten*), and also by the negroid *Irawellen* who in the past were once slaves of the nobility.

(3) *tabelechchat*, that is one slit in the left ear. This mark is used by the *Ikezkezen* Tuareg who are politically attached to the *Kel Ewey* Tuareg.

[428] Though all property marks are patrilineally inherited it may happen in Ayr, as in Ahaggar, that a Tuareg use two marks. For certain Tuareg will use the mother's father's mark for animals given them [77] by their mother's family, other Tuareg have been brought up among matrilineal kinsmen whose mark they have adopted, and there are also people who have adopted their mother's family mark because they believed that their father's mark brought them bad luck in camel-breeding.

614 The Ayr Tuareg of the *Kel Ferwan* group fall into a number of units which are known by the word *tawchit*. It seems to have much the same meaning as the word *tawrit* of Northern Tuareg dialect, but is also used to designate the so-called spiked wheel-trap. I call these units for tribes as they do not seem to correspond to unilateral descent groups. Many tribes have a tradition of their descent from a common ancestress, but though tribal members may know her name they are never able to connect her with their genealogies which are very badly known. To my knowledge there are no tribes of true Ayr Tuareg that are named after an ancestress or have avuncular names. The Ayr tribes have geographical names or are called after an ancestor to whom they are also unable to connect their [59] genealogies. It is possible that the *Kel Ferwan* Tuareg in the past have followed the rules of residence

Collecting

In this chapter on collecting such edible plants are mentioned as play a part in Tuareg nourishment. 222
Wild plants are also collected for other purposes. Many species are important to craft or have a medicinal 224
value. Some of these latter species are mentioned elsewhere in this study.

EDIBLE PLANTS OF THE AHAGGAR AREA

Wild plants which yield edible fruits, seeds, stems, or roots in Ahaggar comprise more than fifty 222
different species. But the importance of collecting should not be judged from this, as all these plants 222
are never found within the same area, and most are eaten only occasionally as a kind of relish or when
agricultural food (wheat, barley, millet, dates) is lacking. I have supplemented my own list of edible 222
plants with important information from Maire's study of Ahaggar botany (Maire 1933 & 1940). In 222
my list the letters Tr., L.M., and U.M. stand for Maire's botanical zones, namely the Tropical Zone, 222
the Lower Mediterranean Zone, and the Upper Mediterranean Zone. The following edible plants 222
are collected in Ahaggar and adjacent regions:—

tirfas (sing. *tarfest*) (*Terfezia ovalispora*). Tr., L.M. A fungus which, according to Maire, lives on 222
the roots of *Helianthemum Lippii* & *H. ellipticum* known to the Tuareg of Ahaggar as *urrug* (Maire 222
1933, p. 22, 139 et suiv.). This white fungus, which is frequently termed *tirfas n urrug* by the Tuareg, 222
is prepared for eating together with various other dishes. It is frequently added to the so-called kus-kus. 222

tahlé (*Typha elephantina*) Tr. Roots and certain lower parts of the stem are eaten raw or boiled.
When vegetable food is scarce they are also pounded or ground into flour.

akeywod (*Typha australis*) Tr., L.M. Roots of this plant are ground into flour.

téséngelt (*Saccharum Ravennae*). Tr., L.M. "Cette plante ... laisse très souvent exsuder un liquide
sucre qui se concrète en masses plus ou moins cristallisées; les Tuareg utilisent ce sucre" (Maire 1933,
p. 54).

afegu (*Panicum turgidum*). Tr. A perennial grass extremely common in the lower valleys of Ahaggar.
Seeds are collected in receptacles (e.g. *ahaga*, Fig. 213) by beating the ears of the grass with a stick.
The seeds are not suitable for bread, but are esteemed for porridge and *tébik*, that is seeds pounded
in the mortar and eaten without further preparation. Ashes of this grass contain soda and are often 226
mixed with tobacco for chewing.

[p. 175]

222 Even in good years it may happen that edible seed-plants are eaten by locusts before they become
 134 ripe for collecting. Collecting is of secondary importance to the Tuareg of Ahaggar though to most
 143 pastoralists it is more important than hunting.

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134 We have seen that Ayr has better grazing grounds and more game than Ahaggar, and it is only
 137 natural that this southern area is also a more favourable one for the collecting of wild plants. Never-
 222 theless, it seems as if collecting is not so important to the Ayr Tuareg who have more livestock for
 143 which millet and wheat can be obtained without much difficulty. The number of edible plants utilized
 in Ayr is probably a very large one. Thus it is said that certain Kel Ewey Tuareg collect many different
 plants, but my inquiries into the methods and the value of collecting were limited to Tuareg of the
 Kel Ferwan drum-group of Southern Ayr where the following species are collected for food:—

222 *afagag* (*Acacia Raddiana*). Pods of this acacia are dried and, after pounding in a large millet mortar,
 242 mixed with milk to be eaten or drunk like the Tuareg dish known as *arejira* (cf. p. 245 f.).

252 *ébezgin* (*Salvadora persica*). Fruit is eaten without any preparation.

tadent (*Boscia senegalensis*). Berries are pounded in the millet mortar to obtain the limpid juice
 which is added to porridge.

1824 *tagayt* (*Hyphaene thebaica*). The dum palm, which is of extreme importance for the handicraft of
 the Ayr Tuareg, is also valuable as food. The young nuts are opened with a knife and the kernels are
 eaten. The old nuts have an edible outer coating which is eaten by children and even by adults when
 they are hungry. These old nuts are also pounded in the millet mortar together with seeds of *ageruf*,
 cf. below.

afizu (*Panicum turgidum*). This perennial grass is very abundant all over Ayr. Collecting of its
 seeds is done by rubbing the ears of the grass between the hands to allow the seeds to fall into a plaited
 bowl. Seeds are pounded in a millet mortar to be used for porridge.

ichiben, that is seeds of an annual grass—apparently identical with *Panicum longithorum* and/or
P. spumosa. The seeds are collected in two different ways:—(1) If the ripe seeds have fallen to the ground
 they are swept together with a bunch of straw. (2) The ears are cut with a knife to be threshed by
 pounding in a millet mortar. The seeds are highly esteemed, being collected to a greater extent than
 seeds of other wild plants. The seeds are used particularly for porridge, but also for certain other
 dishes such as *arejira* (cf. p. 245 f.).

téjit (*Eragrostis* spp.). A grass yielding red seeds collected in the following way:—The ears are
 beaten with the hands so that the seeds fall into a plaited bowl. The seeds are used only for porridge.

wujeg (*Cenchrus catharticus* & *C. Prieuri*). Annual seed-plants with thorny seeds. The dry plants
 are beaten with a stick and the fallen seeds are collected in a heap to be threshed with a stick. The
 seeds are pounded in a millet mortar for porridge.

ageruf (*Tribulus terrester*). An annual plant with thorny seeds which are collected as just described
 for the *wujeg* plants. The seeds are pounded in a millet mortar to be eaten without further preparation.

291 l'homme, nos. 41.19.1376 & 1377). A skin skirt suspended from the shoulders by means of two leather straps also occurs among the *Iwllenmeden Kel Ataram* around Meneka and Gao (cf. Nicolas 1950a, Fig. 38.7 p. 169, p. 176).

292 In case of severe cold a simple hairy skin mantle may be worn by both men and women of the Northern Tuareg. These mantles are not very common nowadays, when most Tuareg use woollen blankets introduced from the north, but they are still worn by vassals, slaves, and sedentary agriculturists of Ahaggar. A skin mantle is known as *aglim* and it frequently consists of a single sheep-skin worn over the back with hair inside (Fig. 240). But there are also larger mantles composed of several hairy goat-skin and/or sheep-skin sewn together with leather thread by means of a little awl (*tistewi*). These larger mantles are attached around the upper part of the body by means of a leather cord around the neck (cf. Fig. 241). Skin mantles are said to be unknown in Ayr, and literature makes no mention of them in other Tuareg groups.

178 Garments made from skin or leather are nowadays rare among the Tuareg. But the Tuareg, like many other peoples who have given up the use of skin and leather for dress, still use this material for foot-wear which comprises various types of sandals.

291 The common type of sandal used among the Tuareg is known as *tratinen* (sing. *tratin*) which word is also used more generally for sandals of other types. It is made from the hide of oxen and sometimes of hides of the oryx antelope or giraffe whose hides are considered superior for sandals. It is not manufactured by the Tuareg but by sedentary peoples of Agadez and other towns in the south.

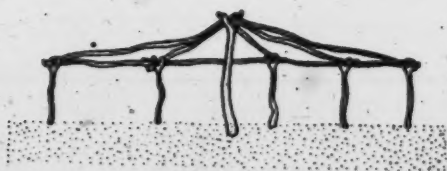
[438] The Northern Tuareg, like the Tuareg of Ayr, generally procure their sandals from Agadez where the type is also known by the Hausa word *takalmi*. The manufacture of such sandals is described in detail by Lhote, who states that the untanned hide to be used for soles is treated in the following way:— (1) Beating with wood against a flat stone; (2) Softening in wet sand; (3) Continued beating with wood against a flat stone; (4) Greasing with butter, tallow, or fatty vegetable substances; (5) Continued beating in order that the fat may penetrate into the pores of the hide. A sandal is made from two layers of hide thus prepared and covered with a tanned piece of sheep-skin which is dyed and decorated. These three layers are sewn together. The sandal is finally provided with a leather strap to pass between the first and second toes, and this strap again is connected with a broader band of leather sewn to both sides of the hind part of the sandal so that the band supports the instep (Fig. 242b). The reader is referred to Lhote's study of sandals for further information about their manufacture (Lhote 1950d, p. 514 ff.). The *takalmi* sandals are excellent for many purposes: They are easily pulled off and put on which is advantageous to camel riders who ride bare-footed but frequently dismount, and then need their sandals put on quickly because of the burning sand and rocks. The

[114] very broad soles of this sandal type is also very advantageous not only as protection against the burning soil, but also against the numerous acacia thorns lying so to speak everywhere in the river valleys. But the Tuareg do not wear sandals of this type just because they find them practical and efficient. They also wear them because they are considered more beautiful in shape and colour than other sandal types made by the Tuareg themselves. Among the Ayr Tuareg a particular type of sandal is plaited from dum palm leaves. According to Lhote this plaited sandal is known as *shisileptamine* (Lhote 1950d, p. 522, Fig. 10 p. 521, pl. XXII Fig. 1). I have never heard it called this, the name 2

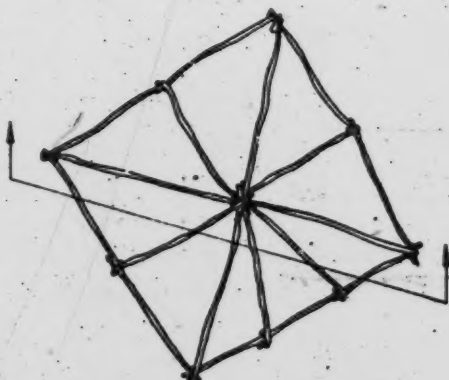
[Text continues on p. 300]

Square or Rectangular Huts . Round Huts or Houses

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0 1 2 3 4 5m

Fig. 251. The structure of a square *ekeber* hut. It was covered with bulrush and belonged to a camp of the *Kel Beni* tribe at Ujal in Ahaggar.

Musée de l'homme, E.47.48.526), and perhaps also in Southern Morocco (Puigaudéau 1945, photograph p. 112). It is possible that huts of the square *ekeber* type are far more widely known in the Northern Sahara. Huts (*zeriba*) of palm material among the semi-sedentary *Chamba Berzga* at Metlili (cf. Mercier 1922, p. 144) may perhaps be of the square *ekeber* type - if they do not belong to the cylindrical type mentioned below. Square huts (*zaria*) seem to occur also among the Fellahin of Egypt (cf. Ayrout 1938, pl. V, p. 64, p. 134; Schildt 1957, ill. p. 112). Rectangular huts measuring 6 by 2 metres are common in the region of Gurara (cf. Bisson, *Le Gourara*, p. 158).

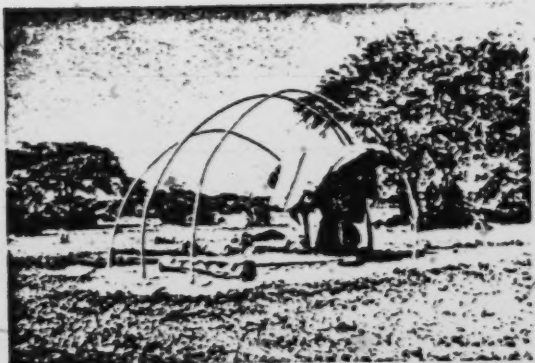
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46. Round huts or houses with conical roof.

Huts of this type, known as *ekeber* (pl. *ikebran*), are very common among the Tuareg of Tassile-n-Ajjer, where the *sabarekka* tree (*Tamarix aphylla*) and the *tullali* grass (*Aristida pungens*) are abundant.

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The Erection of a Mat Tent in Ayr.

Fig. 263a. The wooden bed (s'dahar) is placed upon the cleared ground. The pronged posts carrying riding cushions, skin bags, etc., and the curved wooden pieces constituting the three arches known as *teff*, *teff*, and *teff* are buried in the ground. The cushions and decorated skin bags resting in the heavy wooden prongs are temporarily covered with tent mats that their colours may not be damaged by sunshine.

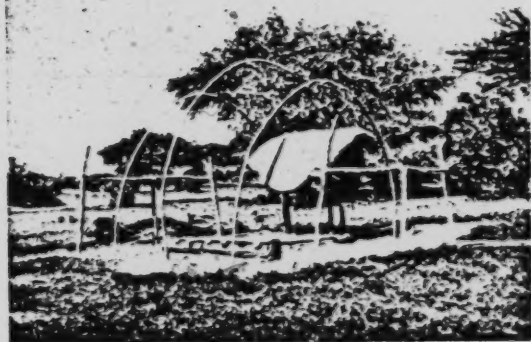


Fig. 263b. The arch pieces are lashed together and the two horizontal cross-bars (s'gaw) are fixed to vertical sticks (s'gaw) buried in the ground at the narrow ends of the tent. A little discus-like thickening carved at the middle of each cross-bar is seen on this photograph.

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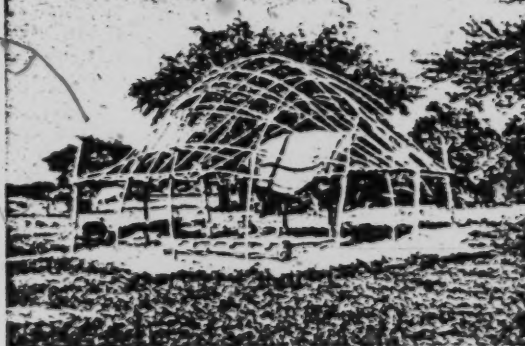


Fig. 263c. A long cord is wound around the high middle arch to form loops for the insertion of the slender rods forming semi-arches in the longitudinal direction. The thick ends of these rods are fastened to the cross-bars but are not yet lashed together at their upper, narrow ends.

Mat Tents

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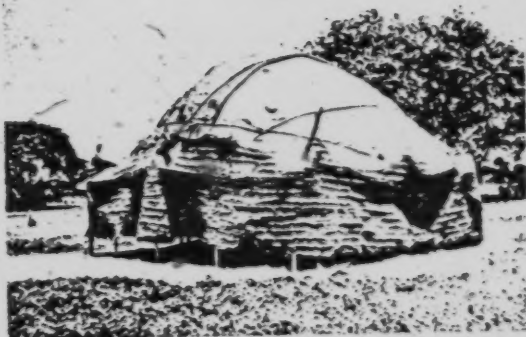
The Erection of a Mat Tent in
Ayr.

Fig. 265d. The narrow ends of the pieces of longitudinal semiarches are lashed together. The tent structure is now finished to be covered with mats. The interior cover consisting of two rectangular mats made from plant stems and known as *iwerrwen* (sing. *éwerrwer*) is seen on this photograph.



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[352]

Fig. 265e. The dum palm mats of oval shape (*isfal*) and the long narrow dum palm mats (*asalemamam*) are placed over the *iwerrwen* mats and are tied to the dome-shaped structure with cords. The narrow dum palm mat (*ayeli*) surrounding the lower part of the tent is fixed to the structure.



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Fig. 265f. The mat tent is taken down for erection in a new place. The woman standing within the structure is loosening the looped cord which keeps the semi-arches to the high middle arch. It is not the same tent as that depicted Fig. 265a-e but the two tents belong to the same camp of the *Iwerrwag* tribe near Agadéz in Southern Ayr.



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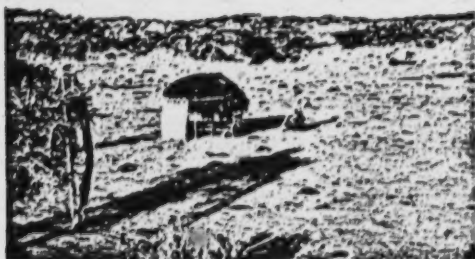


Fig. 270. An arched barrel-vaulted tent covered with a sheet of skin. In the background two arched mat tents. In the foreground to the left two cotton bows. Ayr, the *Kel Tédalé* tribe.

*342 true structure, and structurally there is a great diversity of tent types. It seems as if these tent structures can be divided into a few main groups which I shall describe in detail.

B.2.a. Skin tents of arch construction.

Tents which have one or more arches, generally placed at right angles to the longitudinal direction are widely found in Tuareg country. They are in fact more common than appears from the literature which has been so far published on Tuareg culture. The wide distribution of this particular structure in skin tents is interesting, the more so as it is related to the structure of mat tents. There are the following types of arch structures:—

B.2.a.1. This tent was seen in a camp of the *Kel Tédalé* Tuareg of North-western Ayr. It is known that skin tents are found among them (cf. Joubert 1939, p. 252 f.), but they have never been described. The Ayr Tuareg say that in the past many Tuareg of the *Kel Tédalé* lived in skin tents which, however, are less common among them nowadays. This agrees with my own experience. I have visited several [147] *Kel Tédalé* camps, but I have only seen the skin tent here mentioned. This was found in a camp of [361] three tents, the two others being ordinary mat tents. The skin tent I saw in this camp was also of the normal structure used for mat tents in Ayr, though shorter. The lower part was partly covered, not by a mat plaited from *dum* palm leaves, but by an *afezu* mat.

[221] B.2.a.2. Under this heading I describe two identical tents seen in a camp of *Iregenaten* Tuareg who belong to the Ahaggar federation but have their traditional grazing grounds west of the Ayr [361] Massif in the Tamezna Plains. The camp was actually situated in the region between Tegidda-n-tésem and I-n-abanperit, where perennial vegetation is extremely scarce and mainly comprises scattered [135] *tamat* acacias (*Acacia flava*). The camp visited had eight skin tents among which were the two of arch construction as follows:—

[824] Both tents were very small, and their wooden structure was made of boughs of the *tamat* acacia (*Acacia flava*). In the middle of the tent and at right angles to its longitudinal direction there was an

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Fig. 277. The B.2.b.4 tent with three pairs of vertical forked sticks carrying three horizontal cross-bars in their prongs. Three semi-arches each of them being made of two slender rods are placed over the cross-bars at right angles. The carved poles leaning against one of the cross-bars constitute the main elements of a narrow wooden bed (*iddubar*).
From a *Bella* camp near Ayoro on the Niger.

I saw a few tents which had two or four longitudinal semi-arches, but three semi-arches were normal. The structure of the tent inhabited by the chief *Amdey* had the following dimensions:—

The central pair of vertical forked sticks with their cross-bar was about 1.30 m high, and the two outer pairs 0.20 m lower. The distance between the two sticks of the central pair was about 1.00 m, between the sticks of the two outer pairs about 0.70 m. The distance from the central pair of sticks to each of the two outer pairs was 1.50 to 2.00 m.

B.2.c. Skin tents supported by cross-bars connected with horizontal sticks.

B.2.c.1. It is uncertain whether the structure to be described forms a regular type, as I know it only from a photograph which is in the photographic collection of the Musée de l'homme in Paris (Collection Photographique, 42.811.301). However, this photograph, which is taken north-east of Kidal in Adjar of the Iforas, has also been reproduced by Gjessing in his work on general ethnography (Gjessing 1953, II, p. 176-177). The photograph shows three Tuareg women erecting a tent structure as follows:— Two comparatively high forked poles carry a relatively short horizontal cross-bar which, judging from the photograph, measures less than a metre. A pair of exactly similar poles with

according to which the ancestresses of the two noble tribes came from *Awjila* together with a third sister, who became the ancestress of the *Iberdyanen*. This story runs as follows:—

The three sisters left their original homeland of *Awjila* riding on bull-camels. One night when the girls were not very far from *Iferwan* and the three sisters had gone to sleep, the eldest, named *Sabenas*, awoke before her two sisters and removed the hobble-ropes from their riding camels which disappeared in the desert. Thus the only riding camel left was *Sabenas*'s, and when the sisters arrived at *Iferwan* she alone rode on a bull-camel while her two younger sisters were walking. At *Iferwan* there was then a mighty chief named *Azezezz*. When the girls arrived there he asked them who they were, and *Sabenas* said that one of the two girls who travelled on foot was her sister, but not her true sister, while the other girl was her *tameft* or vassal. The supreme chief *Azezezz* was very eager to marry *Sabenas* as she rode on a bull-camel and consequently was of noble birth. *Sabenas* agreed to marry him on the condition that bride-wealth should be paid in land. And it was agreed that she should have for bride-wealth as much land as she could ride through on her camel at a stretch. She rode off from *Iferwan* and her camel did not get tired until she was close to *Tagedufat* south of the Massif. Here *Sabenas* dismounted and threw her stick towards the south. The stick fell down at the well of *Tagedufat*, and *Sabenas* now had the right to all country ranging from *Iferwan* in the north to the well of *Tagedufat* situated in the southern plains. This vast territory has since then been owned by the descendants of *Sabenas* who are the true noble *Kel Ferwan* or *Irawatten*. But the Tuareg of this tribe claim that they have since then greatly augmented their territory so that they are the true owners also of the land south of the Massif as far as *Tessawa*, which is very close to the frontier of Northern Nigeria.

The noble *Kel Ferwan* Tuareg say that in the past all Tuareg groups within the *Kel Ferwan* territory and a few other groups of Tuareg and negroid sedentary people paid an annual tribute known as *tewse* to the *Kel Ferwan* drum-chief. This annual tribute was calculated as follows:—

Fig. 289. Mat tent of the B.1.b type inhabited by the *Kel Ferwan* drum-chief. It is a very simple dwelling compared with the Sultan's palace, containing two storeys and several rooms. Nevertheless the *Kel Ferwan* drum-chief in the time preceding the French occupation was politically more important than the Sultan. The photograph is taken in the plains north of *Aderbissinat* at the end of rains. Annual grasses of a high value for fodder are growing between the scattered acacias, which are also valuable fodder-plants for camels and goats.



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